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JUNE 1999

Getting Organized With Personal Data Assistants
Page 31

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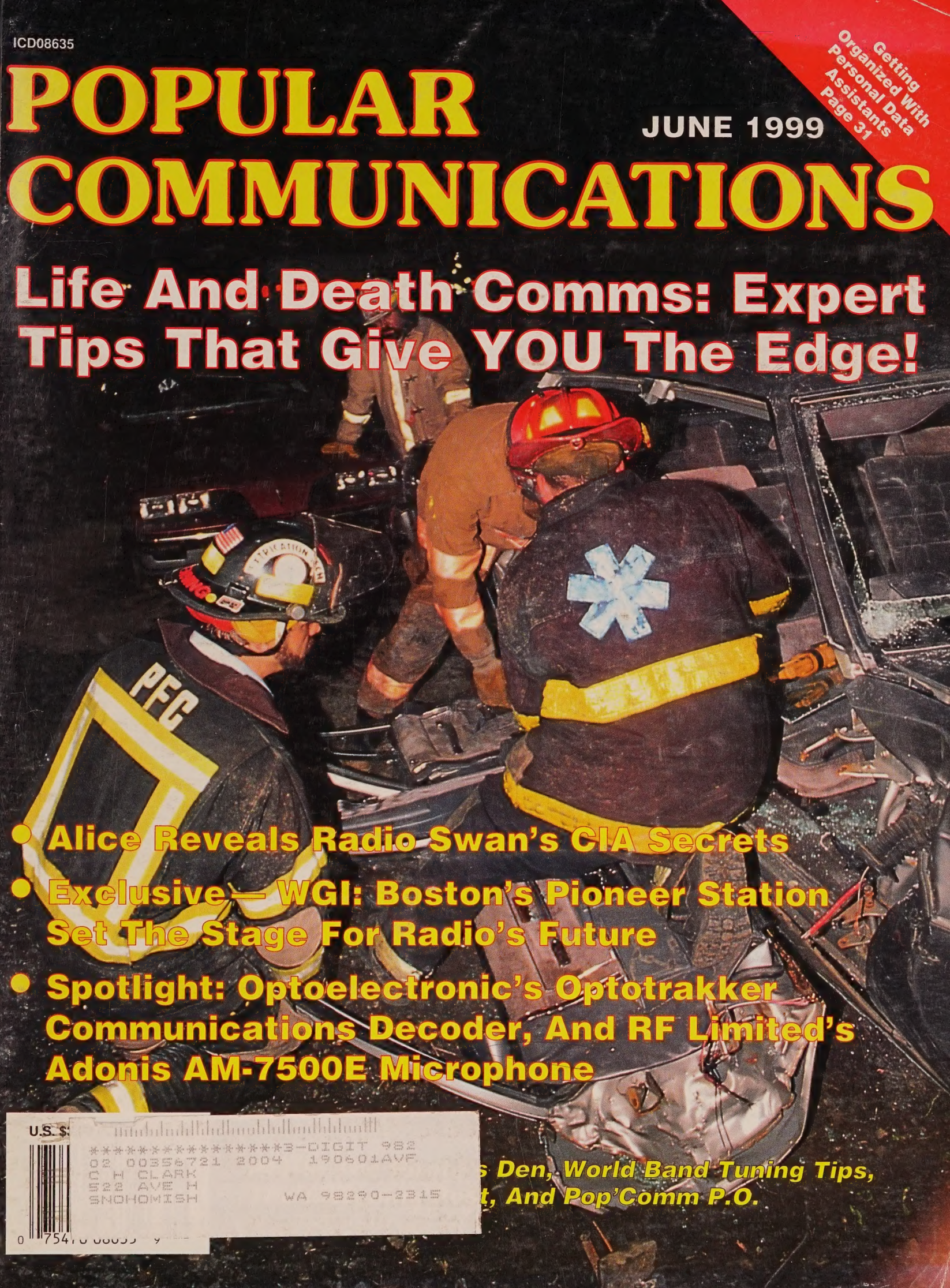

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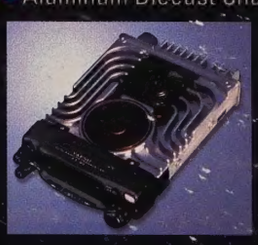

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Radio Swan: At Last, (Most Of) The Story! 8

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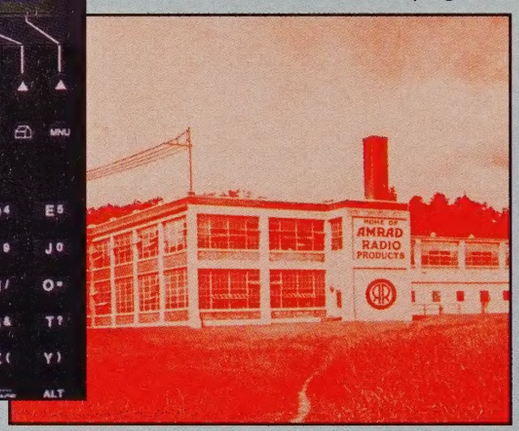
By Alice Brannigan

The Rise And Fall Of WGI, Boston's Pioneer Station 36

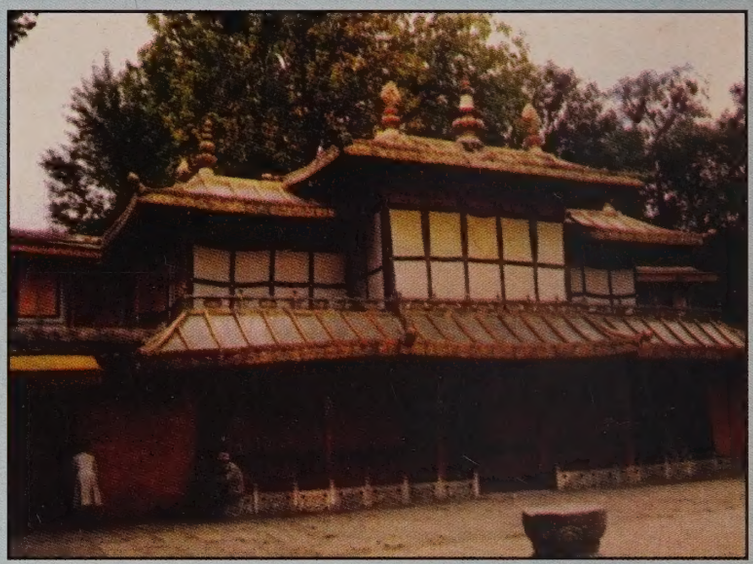
Well ahead of its time, this station set the stage for radio's future.

By Donna Halper

page 21



page 36



page 44

Product Spotlight: *Optoelectronic's Optotrakker Communications Decoder, And RF Limited's Adonis AM-7500E Microphone*.....49

The Ham Column: *Can We Talk? The Art of Conversation*.....54

Communications Confidential: *A Short Reprieve*.....57

Clandestine Communiqué: *Another Ethiopian Clandestine, And The Complete Radio Marti Schedule*.....67

CB Scene: *Texas Ranger's Excellent TR-696F SSB Mobile*.....68

The Loose Connection: *Still Alive (And Crazy) After All These Years*.....80

COLUMNS

The Radio Connection: *Good-bye To An Old Friend*.....16

Radio Resources: *Handheld Satellite Radios Put To The Test*..21

Broadcast DXing: *WSAI: 50kW From Canada To Cuba*.....24

The Pirate's Den: *From Barnyard Effects To Clinton Spoofs, It's There For The Listening*.....29

ScanTech: *The Inside Scoop On Tones, And Looking At Personal Data Assistants*.....31

World Band Tuning Tips: *Navigating International Shortwave Broadcast Bands The Easy Way*.....40

The Listening Post: *Sierra Leone Broadcasting Service Back On The Air, and Italy Boosts SW Broadcasts*.....44

DEPARTMENTS

Tuning In: *The Three Stooges Strike Again!*.....4

Pop'Comm P.O......6

Product Parade: *Midland's New 77-250CXL CB, Marvel's New AM/FM And Weatherband Antenna, And* Fryer's Site Guide.....42

How I Got Started: *Congratulations To Bill Fleming Of New York!*.....71

Readers' Market.....78

ON THE COVER: *Whether you're monitoring on-scene low-power comms, like these firefighters from the Pocatello Fire Co. of the Town of Wallkill, New York, or wide-coverage public safety dispatch operations, you can probably use a good tone reader. Learn why and get the facts about tones from Mr. Scanner, Ken Reiss on page 31. (Photo by Larry Mulvehill)*

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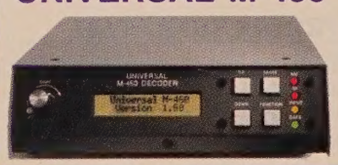

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Tuning In

AN EDITORIAL

BY HAROLD ORT, N2RLL, SSB-596

The Three Stooges Strike Again!

If you're old enough to remember the Three Stooges, that bungling, misguided cart-before-the-horse trio who never seemed to get things right — and you laughed at their antics as I did, you're in for a treat. Actually, I wouldn't call it a treat, but they're back in another form, and stranger than ever. If you weren't around for their shenanigans, you are now.

Enter from left stage, Tauzin, Wilson, and Wheeler. By now, you're certainly familiar with the fellow who wouldn't know a scanner from a brick with a headphone jack, Rep. Billy Tauzin. He penned the original H.R. 2369, anti-monitoring legislation that the Senate saw fit to let die appropriately last session. Of course Tauzin, egged on by Thomas Wheeler, head of the Cellular Telecommunications Industry Association (CTIA for short), wasn't about to give up. Oh, the hallowed halls of Congress where your life and mine is decided at the passing of a buck —literally — and the fleeting signature on a bill. Earlier this year, Tauzin managed to garner support for a resurrected anti-monitoring bill, H.R. 514, from Rep. Heather Wilson. At this writing, it's still pending in the Senate, and its future is uncertain.

"After nearly three weeks, we haven't had a single response."

Hundreds of hobbyists have weighed in on the effects this proposed legislation will have on the radio hobby. Suffice it to say, opinions and personal "reads" aside, H.R. 514 isn't good news. There are those that shrug their shoulders at H.R. 514 (probably the same folks who think the other guy will always take care of our nation's problems) and there are those taking a more active position, carefully reading the legislation and responding appropriately to their elected officials. That's what we did. A letter on *Pop'Comm* letterhead went to all the members of the Senate Commerce, Science, and Transportation Committee. After nearly three weeks, we haven't had a single response. Of course, I also sent letters to Tauzin and Wilson. No response from them either, but then again, realistically, I didn't expect one.

The Main Problem With H.R. 514

A careful read of H.R. 514 produces a glaring, very dangerous precedent, by the use of one word: "or." The intentional interception *OR* publication of what's overheard on a receiver would make us criminals. Perhaps just owning/using a scanner could be construed to mean "intentional." Alan Dixon, a frequent writer on this issue, said, "At what point in the future will this regulation of the airwaves be amended to apply to what one may hear while standing on a street corner waiting for a bus?" Good point. And that's the bottom line: the dangerous precedent set by laws like H.R. 514. For those of you who think we're constantly beating the cellular industry and their cronies to a pulp, we are, because to say nothing is tantamount to rolling over and pretending this is a non-issue! I never got really excited about "pretend" games. Let's talk about reality, because it's the reality that's going to bite our behinds.

We're all concerned about privacy — in this case, these laws are really about cellular phone privacy. As background information, the Communications Act of 1934 basically states that citizens can monitor communications not intended for them *as long as they don't divulge what's heard, or profit from disclosure*. This principle has worked in this country for many years. If a public safety organization or governmental agency wants "secure" or "private" communications, they flip a switch and scramble the communication. The military, which passes far more vital radio traffic than a Congressional representative using a cellular phone, has encrypted communications on an "as needed" basis for dozens of years.

The Mind Of Billy

Rep. Tauzin tells Americans that more privacy is needed to protect cellular phone

(Continued on page 72)

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CIRCLE 132 ON READER SERVICE CARD

Pop'Comm P.O.

LETTERS TO THE EDITOR

Each month, we select representative reader letters for our "Pop'Comm P.O." column. We reserve the right to condense lengthy letters for space reasons and to edit to conform to style. All letters submitted must be signed and show a return mailing address or valid E-mail address. Upon request, we will withhold a sender's name if the letter is used in "Pop'Comm P.O." Address letters to: Harold Ort, N2RLL, SSB-596, Editor, *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801-2909, or send E-mail via the Internet to <popularcom@aol.com>.

When The Code Goes, Count Mike In

Dear Editor:

I have never written to you before and have enjoyed your magazine since it first came out. After reading Ponzio's letter, I feel I must respond. I am not a ham. I won't be until they drop the code requirement. Why? Simple: I want to talk and hear the other person's voice. CW is efficient, but lacks human warmth.

I can pass the technical portion of the test with ease. I can and have realigned old sets, like my SP-600. I build all my own shack accessories. And I have even elmered three people into amateur radio. But I will not get a ticket until the code is dropped. The ham community can sit back and watch the spectrum be given away until there is 500 kHz left! They need people like me. I don't need them. And I am certain that Ponzio did not build and design his transceiver. How liberal of him merely to purchase it! Of course, leveling the charge of appliance operator is unfair, but almost certainly true.

Michael Brown

It Takes All Kinds

Dear Editor:

I am having the same problem trying to hear the shuttle rebroadcasts. I listen to WA3NAN from Goddard, but I use 7.185.0 and 8.360.0. These are the best frequencies for me to hear the broadcast.

It can be very frustrating sometimes to hear what is going on because of the way some ham operators run their stations. During the day, when the shuttle is up, I listen to the 40-meter band until the shortwave stations start to come on, then I switch over to the 80-meter band. When I do switch over to the 80-meter band, I know I will have about two hours of listing time left because of the severe QRM that starts about 18.30 my local time.

There are two ham operators that start tuning up their transmitters on 3.860. and never ask or listen to find out if anyone is using this frequency. Even when the shuttle is not flying, they just turn on, tune up, and walk all over anybody who happens to be using this frequency. I do not know how close they are to me, but they hit my ICOM R-71A receiver at over +30d on the s-meter, and wipe out everybody on the frequency. I can't even catch their callsign because they only talk to each other in Spanish. They are running so much power that when they are asked to please find some other frequency, they just ignore the request and turn the power up more and keep right on talking to each other. I guess they think they own this frequency. To me, these two operators are running their stations like some CB operators and are giving ham radio a bad name.

When the last shuttle was launched (STS-88) in December '98, WA3NAN moved the rebroadcast transmission frequency to 8.362. to try to get away from these two operators. They had received a lot of complaints about them from people calling the station and sending E-mail messages (I sent one of the E-mails myself).It worked for one day and then these two "jerks" moved up the band to just above them and I lost the rest of the event. This was done with malice and on purpose; it was not done by accident or by mistake, but by design.

I believe that if this kind of radio terrorism is allowed to continue and grow, like what is happening to CB and on the ham bands, the FCC will start to take steps to take the ham radio frequencies away from ham radio. I know this seems very far-fetched and hard to believe now, but given enough time and enough complaints, it just could happen. The ham community has to sit down and try to figure out how to get these loose cannons to obey the rules that they said they would honor when they received their ham tickets from the FCC.Yes, I know there is not much you can do about some operators that act like this, but it only takes a FEW to ruin it for the many.

Everyone talks about CB being garbage radio and that ham radio is supposed to be so pure, but I have been an avid shortwave listener since 1960 and from my observations, ham radio is starting to go the same way as CB. I don't listen to the ham radio bands much anymore, and when I do listen to them, I stay away from the frequencies where there is always some sort of fight going on. I'm sure you know what frequencies I am talking about.

Please don't take this the wrong way — there are still more very good operators than bad, it's just that the bad ones make more noise then the good ones do, and they are the ones you always hear about. Sorry about the negative input, but this is something I had to say.

73's,
KBOJ 6187
Blue Thunder

Dear Blue Thunder:

You make some good points in your letter. One would think that with today's sophisticated, pinpoint-accuracy direction-finding equipment, finding these doofuses would be pretty easy. I invite the FCC enforcement folks to comment on these instances — if we hear from them, we'll print their response in an upcoming issue.

We must remember that it's also possible *that the offensive operators in this specific instance aren't licensed hams. Remember, you don't need a license to buy equipment and set up shop. Let's just hope these, and the other renegades are caught and locked up and not even allowed to use a radio to hear the weather.* ■

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Radio Swan: At Last, (Most Of) The Story!

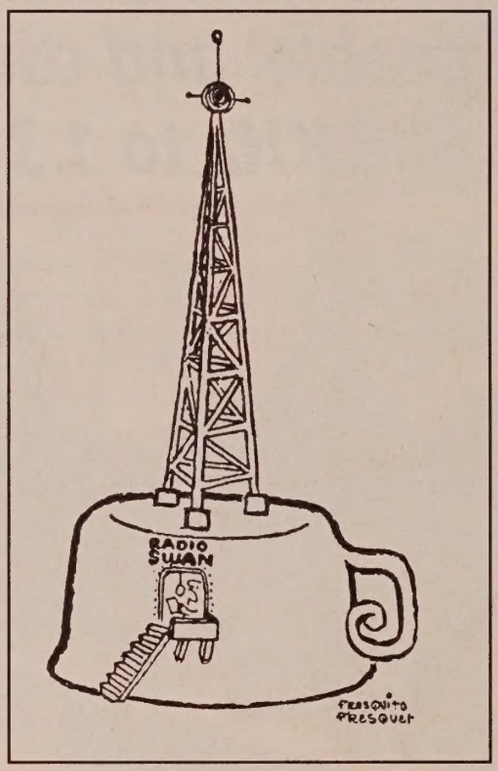
The CIA's "Secret Eyes-Only" Files Now Revealed

By Alice Brannigan

Surely the most controversial and talked-about shortwave and mediumwave station of the 1960s was **Radio Swan** (which eventually became known as **Radio Americas**). This powerful anti-Castro station took to the air in 1960 (50 kW on 1160 kHz, 7.5 kW on 6000 kHz), about a year before the Bay of Pigs invasion, and it continued operating until 1967. Although RS announced its location as (then U.S.-owned) tiny Swan Island, northeast of Honduras, many DXers doubted or openly disputed that claim. Shortly before the station was shut down, the CIA allowed Tom Kneitel to visit RS. Kneitel confirmed that RS was actually on Swan Island (which now belongs to Honduras). Yet, during the 1960s, when RS was ostensibly an unlicensed 50-kW commercial broadcasting station operating from U.S. territory, the FCC continually feigned no knowledge of its existence.

The station claimed to be owned by an American company called The Gibraltar Steamship Corporation, which owned no ships. Right from day one, there was speculation that RS was a CIA operation, and Gibraltar a CIA front.

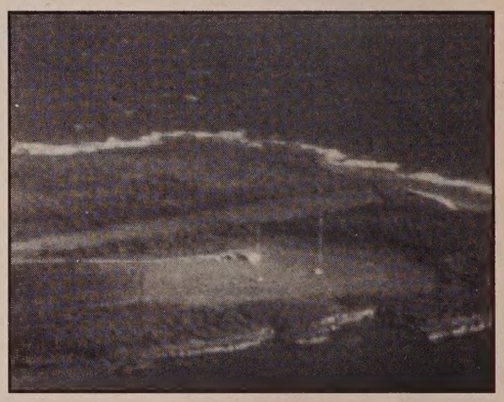
During the last 39 years, much guesswork, investigative reporting, and space has been devoted to RS within hobby publications, as well as the general media. Fidel Castro hated RS, and condemned it in a speech before the U.N. General Assembly. David Lee Phillips, a retired CIA official, provided a few RS insights 20 years ago in his memoirs, *The Night Watch*. Still, many questions have lingered about the true background and motivation of RS. The official CIA *Secret Eyes-Only* report about RS was declassified recently under the FOIA. Some passages were censored, so it obviously doesn't tell all. But at least it contributes yet another interesting piece that fits into the mosaic of other information built up over the years. Tom Kneitel wrote a special two-part piece on the station for *Popular Communications* in November and December 1985.



One way Castro fought back against RS was with humor. This cartoon, comparing RS to a chamber pot, appeared in a Cuban newspaper.

An Extra Tidbit

In addition to the CIA report, a posting on the Internet **<rec.radio.shortwave>** newsgroup from Ron, of Florida, provided additional insights. Ron alleges that equipment used at RS had originally been constructed in the early 1950s for **Radio Free Europe**, which (at that time) was a CIA operation. It was put in service at Cham, West Germany, near the Czechoslovakian border. The Soviets



Bird's eye view of the RS facilities, looking towards the south. (Photo by Tom Kneitel)

The two 243-foot towers that RS used as its antenna system. (Photo by Tom Kneitel)

RS transmitters were portable jobs mounted in vans parked under a roof. The small announcers studio building is at the right, though most of the programming was on tape and flown in from Miami. (Photo by Tom Kneitel)

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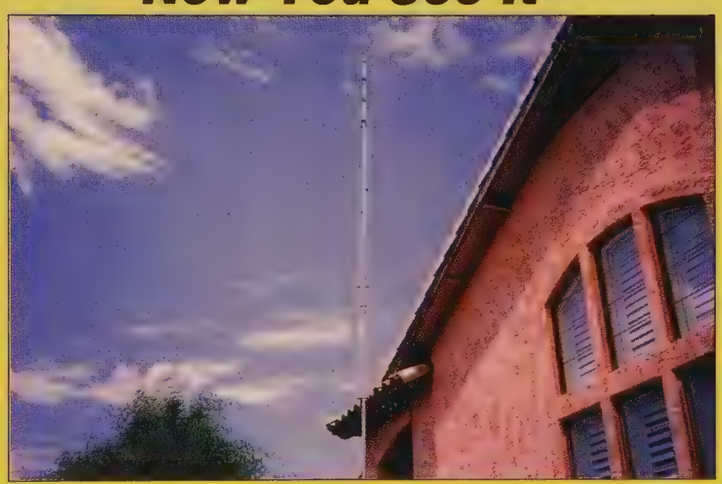

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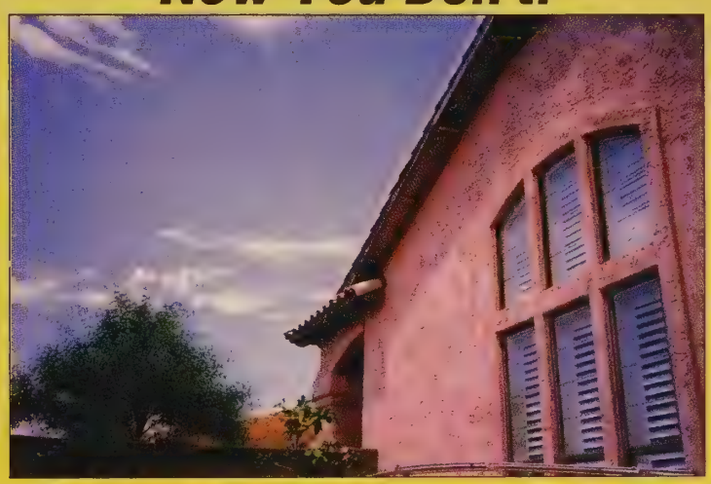

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MEMORANDUM

Tema : Radio America

La radioemisora que transmite por onda corta desde la isla de Swan se identifica como "Radio-America" utilizando unos equipos de 50 mil watts con una antena "rombica" dirigida hacia la isla de Cuba.

Radio America se identificaba anteriormente como "Radio-Swan", saliendo al aire por primera vez a mediados de 1960. La planta fue montada por tecnicos de la Agencia Central de Inteligencia de los Estados Unidos con el proposito de hacer propaganda de "ablandamiento" de la opinión pública cubana como parte del plan de invasión a Cuba que se desarrolló a mediados de abril de 1961.

Radio-Swan utilizaba por entonces un equipo transmisor portatil de menor potencia que el que se utiliza en la actualidad. Una corporación aparecía entonces como propietaria y operadora de la emisora. Segun se sabe dicha corporación es la "Gibraltar

This confidential memo from an anti-Castro source in Miami claims (in the second paragraph) that the station "was constructed by technicians of the Central Intelligence Agency of the United States." (Photo courtesy of Tom Kneitel)

reacted by setting up a jamming transmitter right across the Czech border and operating it on Cham's frequency. Both signals were subjected to identical skywave influences, so the RFE signal was completely neutralized. The Cham station was closed and the equipment mothballed until the need for a station on remote Swan Island. Ron further claims that the station was built on Swan Island a mere 30 days after U.S. Navy SeaBees constructed a dock for the ship bringing the equipment from Germany.

The Official Secret CIA Report

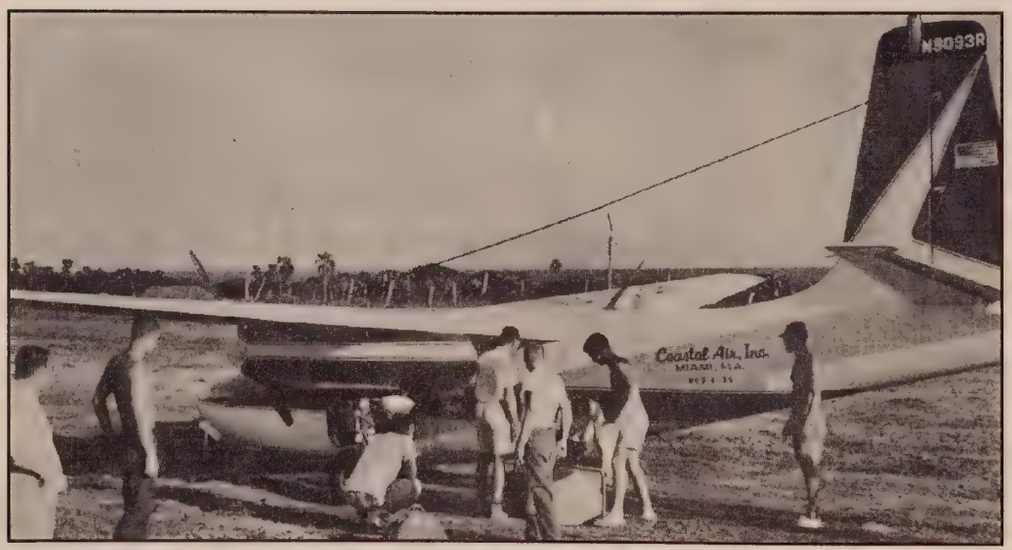
In the official *Secret Eyes-Only* CIA report, it is stated that on 17 March 1960, President Eisenhower approved a covert action program to bring down Castro's government. Part of the program included a high-powered shortwave station, which the CIA was to provide within 60 days from a location outside the continental U.S.

Swan Island was selected, a landing strip was cleared there, and the station was able to commence operation exactly on schedule, 17 May, 1960. The original plans called for RS to be a *black* clandestine, but just before it went on the air, the CIA (with misgivings) agreed to present it as a commercial station. This came about because the Navy argued that should their participation in the construction of a *black* clandestine ever become known, it would be difficult to explain. The CIA felt that a "commercial" station was a less than fully desirable way of running a covert operation. Commercial air time sold included Miami-based anti-Castro groups and publications, which also supplied much of the RS programming.

On The Air

When RS got going, the signal blanketed Cuba and the entire Caribbean. Castro, of course, jammed the signals, but those efforts were effective only in Havana. RS received letters from listeners in all areas of Cuba. In early 1961, RS offered a free pen to all who wrote to the station. That survey attracted nearly 3,000 letters from 26 nations, with large numbers from Cuban listeners.

Early on, RS saw itself as the leading symbol of the anti-Castro effort in the Americas. However, the agency felt that, by late 1960, the station's effectiveness began to become reduced. The CIA report claims that the audience in Cuba remained large, but said the loss in credibility and reputation resulted from certain statements representing "selfish interests" of the anti-Castro groups producing the programs. Also, the CIA felt those groups were directing their rhetoric to Cubans in Miami, rather than the primary audience in Cuba. Furthermore, the program suppliers fought one another for news scoops, leading to exaggeration, sensationalism, even lies. The CIA claimed those factors diminished the RS mission, and (though part of this was censored) seems to blame one of its own departments for failing to properly control the program suppliers.



Program tapes, mail, and supplies were brought in via this aircraft. The grass landing strip on the tiny island had been prepared by U.S. Navy SeaBees.

Bay Of Pigs

As this unfortunate situation was being realized, the Bay of Pigs invasion was

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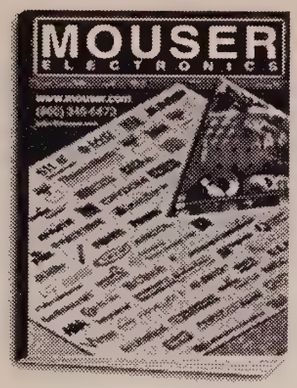

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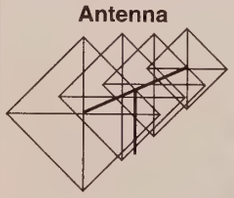

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GIBRALTAR STEAMSHIP CORPORATION

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August 9, 1960

Mr. Richard Lawrenson
[redacted] Street
[redacted], Massachusetts

Dear Mr. Lawrenson:

Thank you for your recent letter concerning reception of Radio Swan programs. We are pleased to verify your report, which is in conformity with our program schedule, and is informative and helpful.

Radio Swan, the International Voice of the Caribbean, is a powerful new commercial station, owned by the Gibraltar Steamship Corporation. It is located in the Swan Islands, West Indies, approximately 100 miles northeast of Honduras.

We hope you will continue to be one of the thousands of listeners in our rapidly growing international audience.

Sincerely yours,
Horton H. Heath

Horton H. Heath
Commercial Manager

RADIO SWAN HOURS OF BROADCASTING

(Eastern Standard Time)

MEDIUM WAVE (1160 KC-50 KW)	SHORT WAVE (6 MC-7½ KW)
5:00 - 7:00 A.M. (in Spanish)	8:00 - 10:00 A.M.
7:00 - 8:00 P.M. (in English)	10:00 - 11:00 P.M.
8:00 - 9:30 P.M. (in Spanish)	11:00 - 12:30 P.M.

In RS's early days, it verified with these letters from The Gibraltar Steamship Company in New York City. (Photo courtesy of Richard Lawrenson, Massachusetts)

ready to take place. With RS penciled in to provide tactical support to the military forces, the CIA claims it realized it could no longer permit the existing chaotic programming situation to continue. On 27 March, 1961, the station notified each producer that their program had been cancelled. An entirely new program schedule immediately replaced the previous one, and the station's hours were extended.

The newly reworked format, according to the CIA's report, offered the Cuban people straight news plus programming that told them the sole function of RS was to support those who were fighting Castro within Cuba. At this point, anti-Castro propaganda intensified. The Cuban government was furious, using Cuban radio and press to denounce RS and its *psychological warfare*.

When the Bay of Pigs invasion took place (17 April, 1961), RS admited it played an active role and was monitored by news services throughout the world. The CIA states that, "Despite some press allegations, **Radio Swan** was not responsible for the wild rumors during those hectic days."

As soon as the CIA realized the inva-

sion force had been unsuccessful, the report goes on to note, that the station "deliberately anticipated" the contents of Castro's victory speech. So RS quickly admitted that the force had been stopped, but claimed that many of the Freedom Fighters had been able to join resistance forces in the hills. The station thereupon resumed its normal broadcasting schedule.

There are more censored parts here, followed by the report's conclusion, stating, "Neither during nor after the strike force has there been any criticism of **Radio Swan** from any country other than Cuba and the United States."

You'll have to decide for yourself how impartial, honest, forthright, and complete the CIA's assessment of its own radio operation was, given that it has several censored portions. Also, remember that RS was unsuccessful in its two most important missions: to help the invasion succeed and to replace the Castro regime. Though the report is undated, it was obviously drafted soon after the 1961 CIA-backed Bay of Pigs invasion, and it was only one component of the agency's larger overall assessment of that failed military operation.

The actual text of the CIA report (along with other Bay of Pigs-related CIA documents) may be viewed online at <www.parascope.com/articles/1296/baydocs.htm>.

During the latter part of its career, when it was known as Radio Americas, *the station verified with these QSL cards from a Miami address.*

NPR Radio History Series

For the past 15 years, Henry Sapoznik has been researching the history of Yiddish radio in America. He's collected at least 1,000 hours of programming, most recently from small New York City area broadcasters (1935–1955), plus more than 30 cubic feet of station memos, photos, scripts, correspondence, newspaper clippings, FCC items, as well as interviews with many pioneers in Yiddish radio.

Along with his award-winning co-producer, David Isay, Mr. Sapoznik will have a multi-part series "On the Air: Yiddish-American Radio 1925-1955" that will

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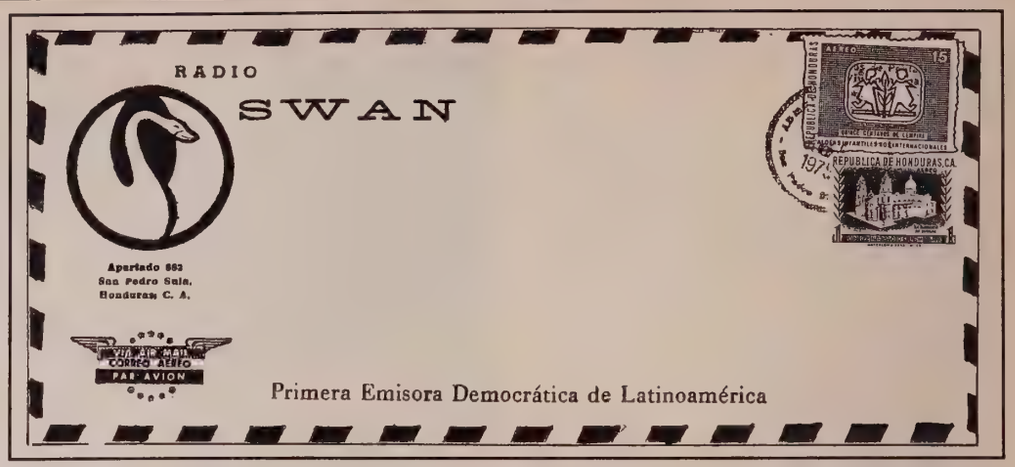
WEVD

New York City's WEVD has long been a source of Yiddish language (and other ethnic) programming. At one time, WEVD was on 1330 kHz with 5 kW, but, in 1981, it moved to 97.9 FM. As of 1988, the station shifted on 1050 kHz with 50 kW. This ad is from a 1946 broadcast trade publication.



In the 1970s, Honduran station HRCZ ("La Consentida," 3 kW on 560 kHz) opened a 1-kW shortwave outlet from San Pedro Sula. For whatever reason, this outlet (call letters HRVU) not only set up shop on 6000 kHz (the old RS frequency), but it also revived the RS name and used a near-clone of the CIA's RS logo. What was all that about? This 1975 envelope from the reborn RS dates from eight years after the CIA's RS apparently went dark.

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Rave Review
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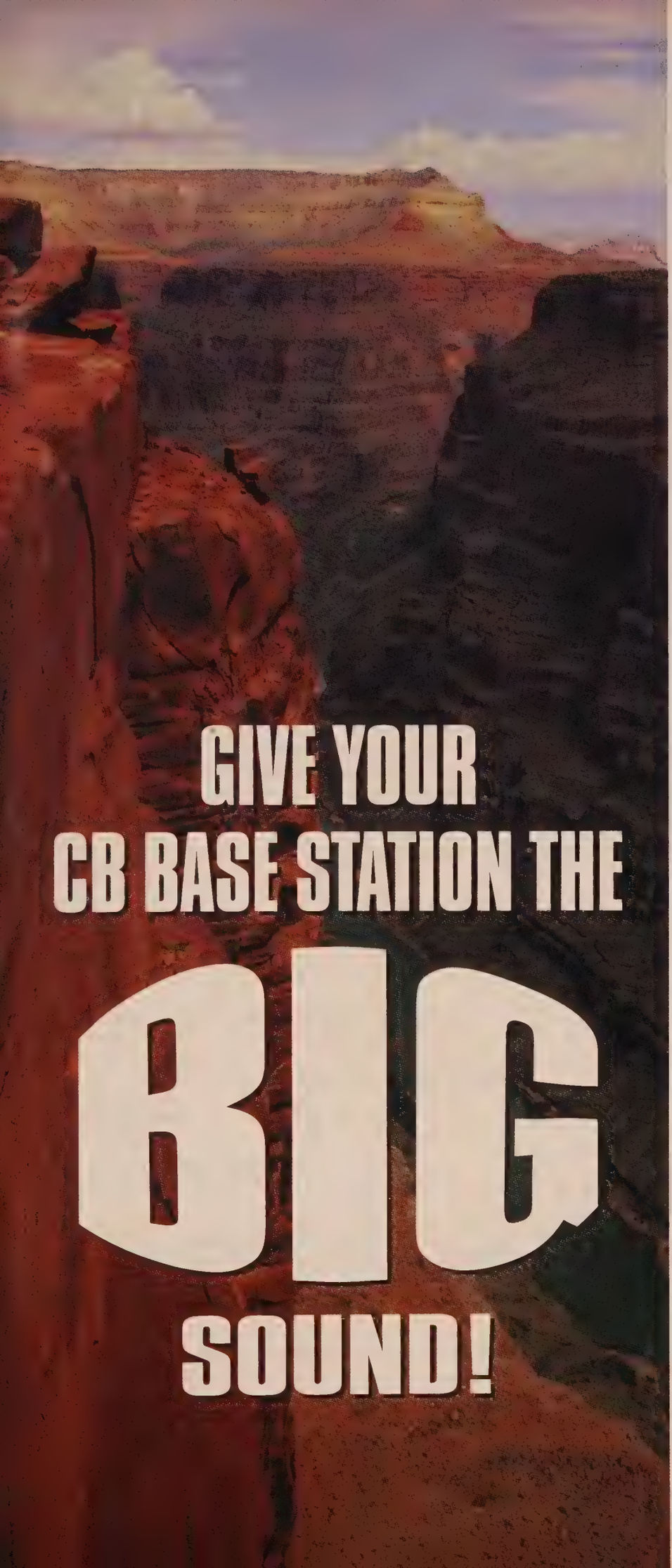
begin on National Public Radio next spring. This will be followed by a book on the subject.

Mr. Sapoznik is still searching for supportive materials and has requested we mention that he would greatly appreciate any relevant input from our readers. Contact him at: Henry Sapoznik, Yiddish Radio Project, c/o Living Traditions, 430 West 14th Street, Suite 409, New York, NY 10014. We support this worthy project and hope *Pop'Comm* readers can assist Mr. Sapoznik.

That's all for now. I'm always looking for any old-time wireless or radio-related items and information to use in my column. Please let us hear from you! Our snail mail address is *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801. Our direct E-mail address is <Radioville@juno.com>. ■



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The Radio Connection

A LOOK BEHIND THE DIALS

Good-bye To An Old Friend

I've always enjoyed the American Pop Standard station WQEW; it was always fun to "fire up" a classic radio time-machine from the era of the Band Bands on a Saturday night and hear the sounds of Glenn Miller as it was meant to heard. But now, WQEW is part of the Radio Disney network; and another favorite spot on the AM dial has passed to a younger generation.

Here's a few comments garnered from several Internet newsgroups regarding the demise of "American Popular Standards" broadcasting. D.N. penned these comments: "Looks like we have lost that great music station. I used to listen to them often when the sun set, since daytime reception was impossible living north of Montreal. AM radio is not very good here in the Montreal region with the National CBS leaving the AM band. The hobby of restoring and collecting vintage radios is slowly losing its appeal. I listen to my favorite radio and find fewer and fewer stations available. A good part of my interest in old radio is at risk. Sad."

Well said, D.N. Let's just hope that the Big Band station, 580-CKLW from Windsor, Ontario, stays lite! In another post, D.H responds: "You got it, Pete. Civilized broadcasting just doesn't pay off. Detroit lost its only privately-owned classical station about a year ago to a contemporary hotshot rock-and-#$%$ broadcaster. I used to listen to WQEW a lot. Before that, as you surely remember, it was the New York Times' WQXR, a monument of high-quality broadcasting. If you can pick up WSAI, Cincinnati, at 1530, it is decent and comes in very strong in southeast Michigan. They have a phased north-south array, but it is worth a try."

F.J.W. states: "This was a major loss for everyone, including AM stereo buffs. WQEW was a great high-fidelity AM stereo station."

One last comment from F.J.M. who wrote: "I am furious over this! WQEW was regular evening listening for me." I understand that listeners actually picketed the station when the change of programming was announced. Unfortunately, the Disney deal was just too lucrative for a responsible corporation to pass up. I will not comment on Disney programming. I am sure it is first-rate for its intended younger audience. It is a shame, given the lack of original programming on AM, both venues can't share the spotlight. WQEW's 50 kW covered a vast area over the Northeast and leaves a big vacuum waiting to filled.

A Boy's First Radio

"Once upon a time, (and this is a true tale), a boy had a whole railroad system for a toy. The train ran automatically, propelled by tiny electric motors, the signals went up and down, and when the station was reached, a bell rang. The train moved on again and was off on its journey around

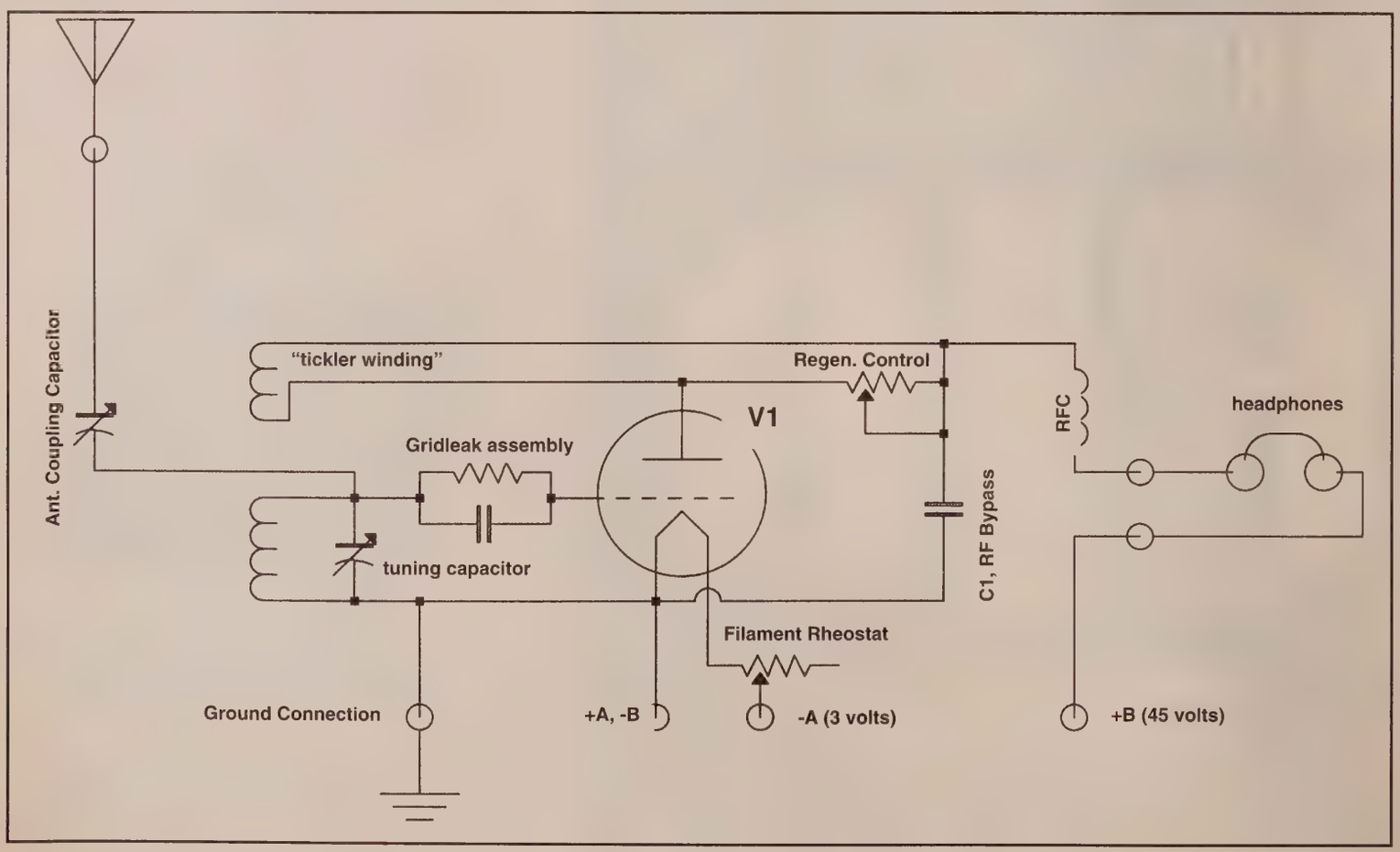

Figure 1. A boy's one tube receiver project.

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many feet of track to come back over the old route. The boy viewed his gift with raptured eyes, and then his face changed and he cried out in the bitterness of his disappointment: 'But, what do I do?' The toy was so elaborate that the boy was left entirely out of the play. Of course he did not like it, his cry tells a long story . . . "

Alfred Powe Morgan
Upper Montclair, NJ
March 15, 1947

These words were penned for the preface to the "Boy Electrician" over a half century ago. They are just as true today as back then. Perhaps things are a bit worse today. Children no longer need to create toys with their own hands — gratification is expected to be immediate, with no effort expected of the recipient.

Last month, we announced our first building project for "The Radio Connection," a simple one-tube battery-operated AM and SW receiver. The design was going to be based on the circuit used by Morgan in his "Boy Electrician" book, but I have also combined some improvements taken from other publications, such as the "Everybody's Radio Manual," which was published by the *Popular Science Publishing Company* in the early 1940s.

Let's take a look at the schematic I've come up with in **Figure 1**. The schematic is rather "generic," as there are many options available to the builder. Don't worry about this — I will show photos and drawings to illustrate these construction details when construction gets under way.

Many one-tube homebrew receivers from the early '30s and '40s used commercially available four-pin plug-in coil sets that covered the AM broadcast and shortwave bands. Both Morgan and the *Popular Science* projects used coil sets specified for .00014 mfd. (140 pF) tuning capacitors. Back then, a young radio experimenter could walk into almost any radio supply house and find everything needed to build these receivers. Today, walk into your local RadioShack and ask for a 140 pF tuning capacitor and a matching coil set, and you will get some strange looks! To simplify matters, I have found a source for blank four-pin coil forms, and I'm going to redesign the coil windings to accommodate the more popular and available 365-pF tuning capacitors offered by AES and several other vendors. A larger tuning capacitor will yield a larger tuning range, the trade-off will be "sharper" tuning — a more delicate hand will be needed to fine tune stations.

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Subject: Comparative Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #870529

We have completed relative gain measurements of your model 1000 antenna using the K-40 antenna as the reference. The test was conducted with the antennas mounted on a 16' ground plane with a separation of greater than 300' between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

FREQUENCY (MHZ)	RELATIVE GAIN (dB)	RELATIVE POWER GAIN (%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.60	45
27.165	1.50	41
27.215	1.60	45
27.265	1.75	50
27.315	1.95	57
27.365	2.00	58
27.405	2.00	58

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In addition, we use 10 Ga. silver plated wire to reduce resistive losses to a minimum.

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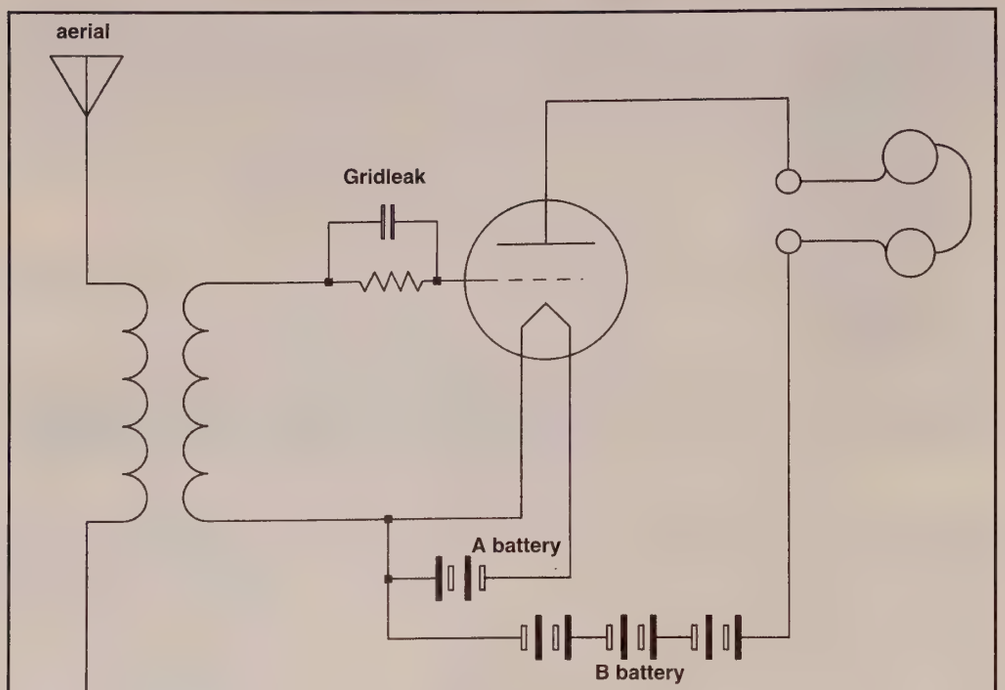

Figure 2. Early gridleak detect using Audion tube.

What about the tube? There are three tubes I will be using for this project: a 1H4 (1G4), a 30, and an UX-99. The 1H4 and 30 tubes are electrically identical, except for the tube socket. The IH4 uses an octal socket and the 30 uses the same style four-pin socket required by the plug-in tuning coil. The nice thing about the 30 or 1H4 is that they are readily available and fairly inexpensive. They were designed for use in early battery-operated farm radios, hence they have 2-volt filaments that are better suited for use with wet batteries. This presents a small problem, as it is more practical to operate the radio from common 1-1/2-volt "D" cell flashlight batteries than 2-volt lead-acid cells. Morgan avoided the problem by running his filament at 1-1/2 volts, but I feel this can cause problems with low tube emission and shortened useful battery life. The *Popular Science* set used a three-volt battery. A 10- or 15-ohm variable resistor (rheostat) dropped the voltage to 2 volts. This is a more elegant solution. It allows the user to adjust for aging batteries and failing emission on aging tubes. Vintage 1920-era filament rheostats are commonly available items. I will list sources for locating NOS (new old stock) and used rheostats in an upcoming issue. You can also use a more modern pot to control the filament voltage, or even a fixed-dropping resistor can be used. More on this later.

The UX-199 ('99, 199, 299, etc.) filament is rated for 3.3 volts, a good match for two "D" batteries in series. These tubes are becoming scarce, and are increasing in value. If you have a few on hand, you might wish to try one in the receiver, otherwise I suggest using the more inexpensive 1H4 or 30 tube. The 1H4 or 30 tube filament draws about .04 amps (40 mA). They are easily powered from a pair of alkaline "D" cells. The 99 requires about .063 amps, or 20 mA more current than the 1H4.

How Do You Turn It Off?

Figure 1 doesn't show an "off" switch, so I know you're going to ask how the radio is turned off or on. Well, it's going to depend on upon how you choose to design your version of the radio. This is simply done by removing the battery voltage from the tube filament. What we need is a "switch" to do so. Morgan used a 50K-ohm potentiometer for the regeneration control that included a built-in off/on power switch for the filament. The rheostats made for early 1920s battery radio sets usually had an "off" position just past the point of maximum voltage drop. You could also simply use a toggle switch to turn the tube filament off or on.

I don't want to get too heavily involved in construction details this month. This is best done using photographs to illustrate how the radio can be made, and the different options available to the builder. I had hoped to begin building a few models and have the photos on-hand for this issue, but I've managed to catch the flu bug going around and have been feeling mighty low the past week or so.

Before we go much further, let's take a look at how the receiver works and what a "regenerative" receiver is. First, some background. Thomas Edison's early electric lamps would darken with age as a film of carbon formed on the inside of the bulb, resulting in a loss of light long before the filament reached the end of its useful life. One experiment Edison tried was adding a small metal plate inside the electric light. While it didn't solve the problem, Edison noted that when the filament was hot, current would pass in one direction between the filament and plate. This "Edison Effect" was put to practical use by Flemming, who used it for an improved detector for early wireless. In 1907, Lee DeForest added a third element, in the form of a spiral wire between the filament and plate. DeForest had invented the triode, the first tube capable of amplifying weak signals. **Figure 2** shows an early detector circuit based on DeForest's Audion triode.

It wasn't until 1913 when a young radio pioneer, E. H. Armstrong, developed the regenerative detector circuit. He did this by feeding a portion of the output signal back into the input, so that the amplified output signal would again undergo more amplification. You can see, by comparing the circuits of Figures 1 and 2, how Armstrong accomplished the feedback with the addition of a small tickler coil. This resulted in a simple one-stage receiver that had far greater sensitivity than an amplified detector. Armstrong also noted that the "feedback" could be used to cause the circuit to break into steady oscillation, permitting vacuum tubes to be used as RF signal sources for the first time. Armstrong's contributions include the superheterodyne receiver, and the first practical example of a working FM radio system.

Well, that's it for this month. Hopefully in July, we can start showing some "hands-on" work in progress on our receiver. ■

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CIRCLE 62 ON READER SERVICE CARD

BY GORDON WEST, WB6NOA

Radio Resources

INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Handheld Satellite Radios Put To The Test — The New Iridium Satellite Phone And The Magellan Orbcomm Data Messenger

Every two years, I take part in providing remote communications for an international yacht race that finishes in a remote part of Banderas Bay, Mexico. For over 20 years, marine single sideband and ham radio high-frequency communications have worked well in my communications from shore to the racing ships at sea. I relay these position reports and finish results back to the States using ham radio, as well as higher marine SSB channels.

While bouncing signals off the ionosphere has worked well over all these years, I figured it was time to gear up for the new millennium of satellite communications, and try my hand at a brand new Motorola Iridium satellite phone, as well as the brand new Magellan data messenger. Both systems work off of new constellations of low-Earth-orbit satellites, and are 100 percent handheld portable and may be used anywhere in the world. You have probably heard about them, and I can now give you first-hand feedback on how they operated 1,000 miles south of the border.

Motorola Iridium

The Iridium system has 66 satellites in orbit, plus six in-orbit "spares" high up at 485 miles, circling the Earth every 100 minutes with six orbital planes to provide continuous telephone coverage anywhere in the world. The Iridium phone operates GSM, frequency-division, time-division modulation at 2.4 kilobytes per second, yielding good voice recognition capabilities at both ends of the circuit. The handheld is 100 percent portable and operates L-band; 1616 MHz to 1626.5 MHz, with less than one-watt output to a very strange-looking antenna system that is positioned well above your head.

Since I would be operating the Iridium phone in an area not served by Mexico cellular, we brought in the Iridium phone with ONLY the satellite module built in. For international travelers that might be in and out of foreign cities with cellular, the Iridium phone will take add-in modules that first look for any kind of *terrestrial* cell site to roam. And if it detects no cellular in the area, it will automatically switch over to the orbiting satellites.

Our race communications mobile marine relay contact was aboard a 58-foot custom motor yacht, owned and operated by Larry Silver, who made the arrangements for acquiring the Iridium 9500 portable phone. "It took me over a week to finally get the equipment lined up because the Iridium service providers didn't have all of the answers about the cost to get me on the air for this yacht race," comments Silver. While everyone was able to quote the correct price for the purchase of the phone itself, only one provider, Debra Sortino (760-967-8800), had the definitive answers on what it was going to cost to make phone calls out at sea and on-shore in remote Mexico.

Q. How much do you think it costs to purchase the phone?

A. $10,000
B. $5,000
C. $3,000
D. $1,000

A. If you decide to purchase the satellite-only version of the Iridium Series 9500 portable phone, the price is $3,000 with a $200 rebate program which took place when this article was prepared. If you want to add the analog or CDMA cellular capability, you will pay an extra $300 to $500 for the best deals available, if you order the add-on cassette boards at the same time you get the phone delivered.

Q. How much does it cost to activate a new Iridium phone handheld?

A. $1,000
B. $500
C. $250
D. $100

You will spend an additional $99.95 to get your phone turned on and registered for the Iridium satellite service. You will be issued a unique PIN that is a four-digit number that only YOU know, so the calls you make are billed to a predetermined address. If you have friends who may wish to make phone calls from your Iridium voice communicator, you may purchase optional SIM cards that they insert in the unit when they want to be billed for the call.

The Magellan GSC100 data communicator.

Q. How much per month for the Iridium satellite service?

A. $70
B. $100
C. $10
D. No monthly fee

Whether you use the phone or not, you will pay $70 for access to the Iridium satellites. Different service providers may have higher-amount "plans" that could include a specific number of minutes of air-time for a specific monthly fee, much like cellular.

Q. So what is the charge per minute?

A. $.10
B. $1
C. $5
D. It depends.

The per minute figures run anywhere from "virtually free" between Iridium handsets, to as much as $5 a minute. You really won't know for sure until the end of the month, when you receive your phone statement. Sortino, an Iridium service provider, explained. "Motorola built the Iridium network, and they manufacture the phone. It is the Iridium consortium that owns the network, and the service provider has certain rates for how the phone call is completed. The consortium develops its own air-time costs, and service providers sell the air-time, so chances are pricing is relatively uniform regardless of the service provider you are purchasing your equipment and air-time from."

Q. Who pays for a call from land to an Iridium phone?

A. The Iridium subscriber

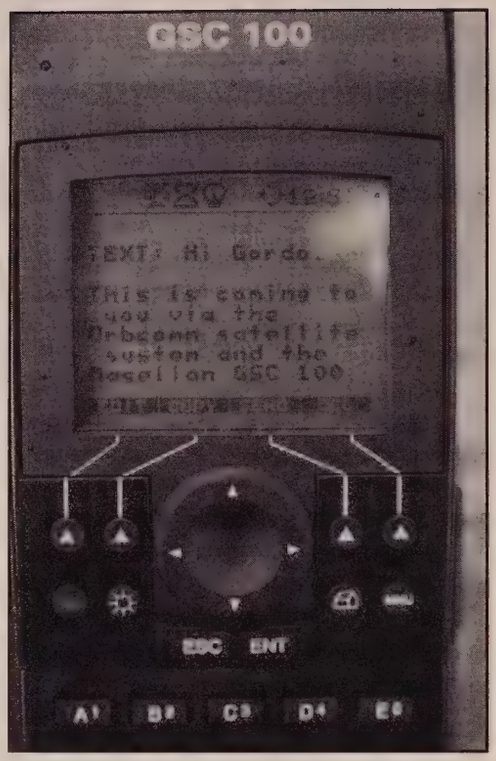
B. The person making the phone call from land.

C. The cost is shared.

"The calling party pays," adds Sortino. This means that YOU will get a phone bill if you call someone on an Iridium phone throughout the world. And how much will it cost you? Again, IT DEPENDS.

"If two Iridium satellite phone users are talking to each other and not going through the public switched network, the calls are free," adds Sortino. "But the minute you go through a land-line phone number, Iridium has to pay for that interconnect, and this is where pricing gets funny," adds Sortino. (To the tune of $6.50 per minute!) "AT&T, Sprint, MCI, and other carriers charge for this interconnect service," comments Sortino. "... or maybe it's $5.50 per minute, but you get my point — it's pretty high." "And one of the big reasons why it took the Iridium system so long to get going was the Iridium consortium had to negotiate with every phone company in the world." She continued, "If you use your satellite phone within a foreign country to contact a land-line within that same foreign country, the rate might only be $2.50 per minute." And that includes long-distance charges, too. A good deal. "But when you call from one country back to the United States, it could be as much as $5.50 per minute, and that includes land-line charges, too," adds Sortino. She encourages *Pop'Comm* readers to ask for specific rate charges if they're serious about acquiring this equipment from their local service provider, or directly from her in California.

But there are some interesting ways to get around the high phone company bills.



A closer look at the GSC100.

One way is to log onto the Iridium Website <http://www.iridium.com>, and develop a text file which may be sent to an Iridium user at no charge. It goes solely through the Iridium system. This text message will appear on the phone screen, and the cost is zero!

There is a different per-minute charge when talking in international waters, and when getting close to shore and talking in that foreign country's jurisdiction. Although the Iridium phone does not have a built-in GPS, phone location might be determined by a process called trilateration, the process of determining the position of a ground user by femto-second time delays between different satellites receiving the signal.

So when it comes to determining how much you are going to pay when your Iridium phone call gets interconnected to the public switched network, you probably won't get a firm answer until the end of the month when the phone bill arrives. I plan to be sitting down when I get mine!

Q. How well did the handheld work on land and at sea?

A. Superb

B. Pretty good

C. Lots of drop-outs

D. Lots of static

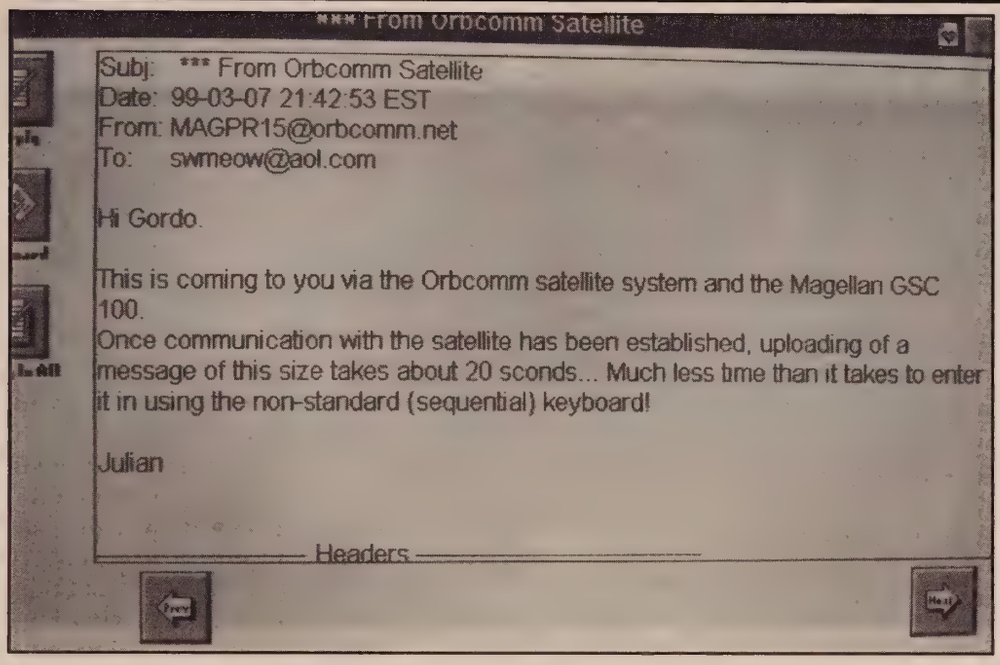
With over 100 incoming and outgoing phone calls under our belt, Larry and I concluded that the operation of the Iridium satellite phone was SUPERB! Voice quality sounded brassy, but easily recognizable. The traditional phone-ring sound was completely different, but when the party picked up, they sounded like they should. There was absolutely no static, which is what we would expect from FDMA and TDMA technology. But there was a nagging delay in the conversations. This delay is not from the short path up and back to the satellites, but rather associated with analog to digital to analog signal processing. The delay was so pronounced that carrying on a fast-paced conversation was next to impossible. It was best to say "over" when you wanted the other party to talk, and explain to them at the beginning that they cannot interrupt.

The only other minor problems we encountered were getting all the right numbers for the country code, and always remembering to first enter our secret PIN number. One time Larry forgot, and repeatedly started punching in country code numbers. After four attempts, the phone went into the lock-down mode, thinking someone was trying to forge some wrong numbers as PIN numbers. Larry then had to go to his long-range marine single sideband, and get his unique PUCK number that resets the PIN number.

Out at sea, Larry would flip up the strange-looking antenna, and be able to make phone calls from almost anywhere on the ship. When we went ashore, Larry and I had to make sure we were standing in the clear with a good shot of the sky for us to complete a phone call. If we walked too close to a building, we would begin to miss syllables; and after about five seconds of intermittent reception, the circuit goes away. "I found it quite critical on how the antenna must be pointing straight up," comments Silver. "Depend-ing on which ear you use to listen to the call, you need to make sure that the antenna is straight up. And keep your hand away from the antenna, too, or else the call will drop," adds Silver. But overall, the phone placed and received calls almost like a regular portable cellular phone, except for that nagging signal-processing delay.

Magellan Orbcomm Data Communicator

We also operated the portable Magellan Orbcomm GSC100 data communicator. Considering all it can do with the satellites, this is a low-priced piece of equipment. It sells for under $999, and a monthly access of $29.95 includes a block of digital messaging time that won't break your bank account. There is a one-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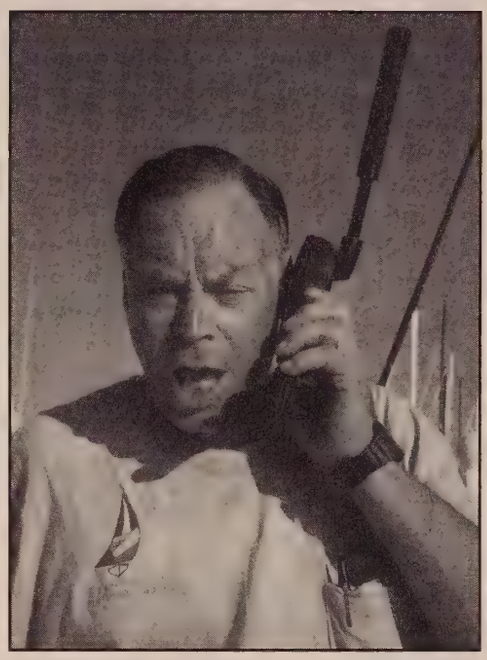
Headers

An incoming E-mail message.



The Iridium satellite phone was superb!

time $49.95 fee to get signed up.

Q. On what frequency does Orbcomm operate?

A. K-band

B. L-band

C. 10 GHz

D. Around 2 meters ham

You'll be surprised with this answer — the Magellan Orbcomm operates just above and just below the 2-meter ham band, approximately 149 MHz uplink, and approximately 137 MHz receive. Text data rate is 2.4 KB, transmit and 4.8 KB, receive. Part of the datastream is also the built-in GPS position information, which is very important in an emergency.

Our Magellan GSC100 runs on internal rechargeable batteries, just like the Iridium phone. But this is a data communicator only, not a voice system. We could create, forward, and reply to any E-mail message addressed to our unit. We could compose a 2,000 character message and send it directly from this handheld to a satellite, to be received by an USA ground station. If we were to operate the equipment thousands of miles away from shore, we would need to relay through several Orbcomm satellites. Our message size would shrink dramatically down to a screen, full of about 200 characters. But that is still enough information to send a global-type "gram" of info. I regularly received short E-mail messages from Julian, N3JF, up in the States. It was easy to reply back: just key-enter the message on the tiny keyboard, pull up the antenna, look for a satellite, and then send it.

Almost anywhere in the remote area of Mexico, satellite access on receiving messages was very good — almost 24-hours-a-day. On transmit, we absolutely needed a clear shot at the sky in order to get our message through. Down on VHF, we found that the telescopic whip orientation to the satellite was extremely important, and to keep it relatively still while uploading the message. In other words, we couldn't be swinging the whip all around and walking beside buildings using this equipment. We had to go to a clear spot, put the GSC100 down on a metal surface for a good ground plane, and then watch the signal-strength meter jump to attention.

We also received messages from shoreside phone callers who spoke their message to an Orbcomm operator, who then sent it as digital text. We could also do the same — costing a couple bucks more. We could also download Orb Weather, which was near real-time, position-specific weather reports directly on our GSC100.

If you need a way of someone keeping track of where you are, and your status, the Orbcomm data communicator is just the answer. But if you need to gab with someone over the phone, you'll need to go with the more expensive Iridium phone.

Both pieces of equipment, 100 percent portable, worked as advertised and impressed the heck out of us in the remote area of Mexico. To learn more about Orbcomm, go to the Magellan Website at <http://www.magellangps.com>, or phone 909-394-5000.

While fixed-mount mobile satellite communications equipment has been around for several years, these two new handheld portable transceivers are the very first for 100 percent portable use without the need to aim an antenna at the orbiting satellites. ■

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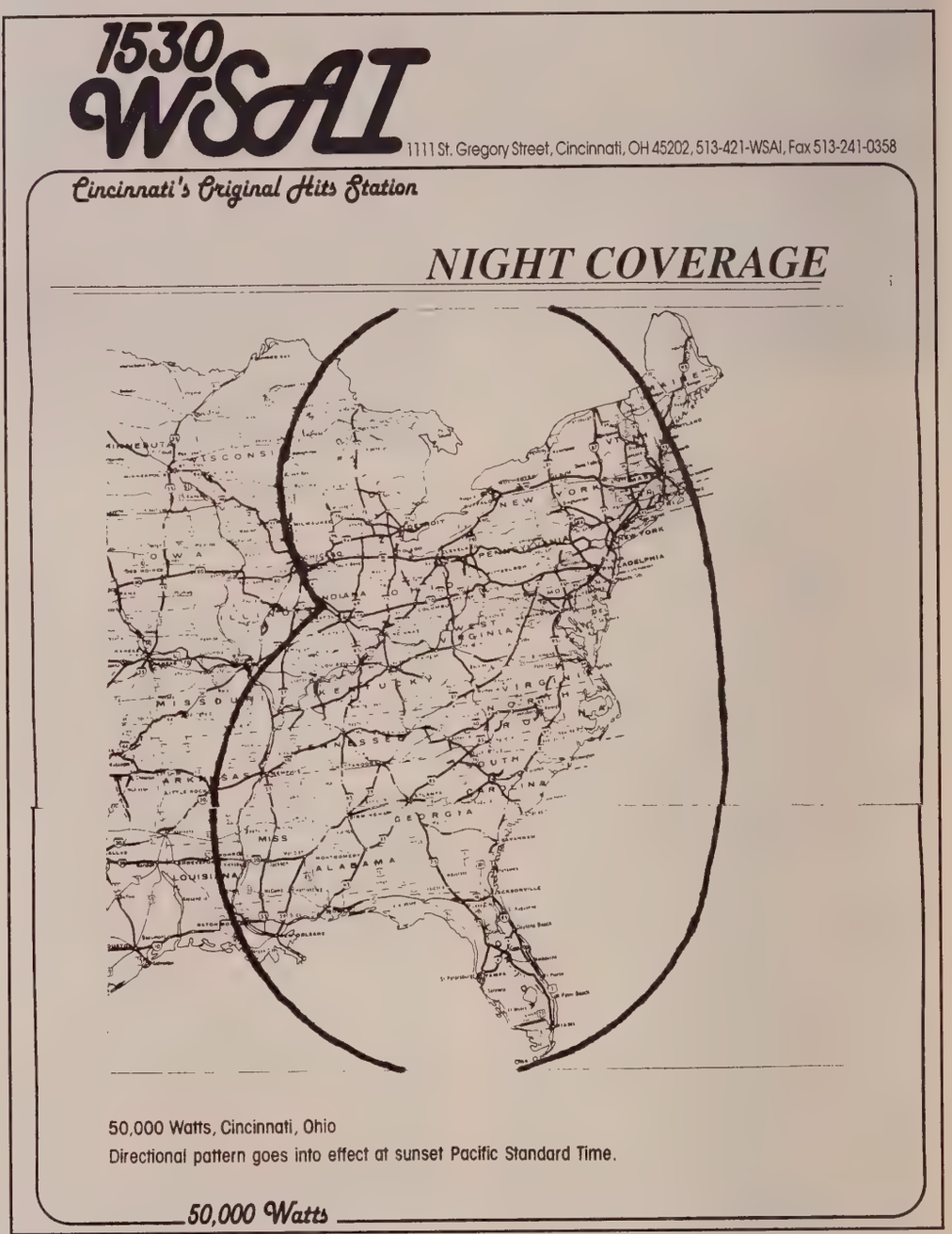
DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

WSAI: 50,000 Watts From Canada To Cuba

After reading in the April "Broadcast DXing" about the demise of nostalgia on clear-channel WQEW New York, WSAI Operations Manager Dave Mason wrote, "There's still one station that programs American popular standards music on AM, is live and local, and doesn't rebroadcast Westwood One. WSAI out of Cincinnati at 1530 kilohertz is alive and kicking into the late hours with the likes of Sinatra, Bennett, and Clooney. Our hostess is live 'til 10 p.m. and she's followed by the original radio programs on 'When Radio Was.' Our 50,000 watt signal covers a great deal of the Eastern U.S., Midwest, and South until we go directional (two hours after local sunset) and even then we're like a local station when our four-tower array sends the signal up and down the East coast. We are affiliates of the Music of Your Life Network and Westwood One's Adult Standards formats, but rely on them only to fill in unsold overnight hours. Yes, to help pay the bills, we broadcast religious programs from 11:30 p.m. to 5 a.m., but haven't heard from a great deal of listeners that they actually mind. From 5 a.m. to 11:30 p.m., we fill the needs of many to hear this format with a strong clear signal."


1530
WSAI
1111 St. Gregory Street, Cincinnati, OH 45202, 513-421-WSAI, Fax 513-241-0358
Cincinnati's Original Hits Station
NIGHT COVERAGE
50,000 Watts, Cincinnati, Ohio
Directional pattern goes into effect at sunset Pacific Standard Time.
50,000 Watts

WSAI's night coverage pattern covers a huge area.

The Original WCKY

The current WSAI has had the call letters since 1994. Prior to that it was WCKY, which it had been since its inception on September 16, 1929. The original WCKY call pertained to Covington, Kentucky, the original city of license when on 1490 kHz, before the AM band was expanded beyond 1500 kHz during the reallocation of 1940. (WAKR Akron, Ohio, actually occupied 1530 early in the 1940s.) The transmitter site has always been where it is now, on a bluff in Villa Hills, Kentucky, just west of Covington and to the southwest of Cincinnati.

WCKY was a premier middle-of-the-road station in the '60s, utilizing the big nighttime signal to broadcast "per inquiry" programming, including the ever-popular "Hillbilly Jamboree," and "Wayne Rainey singin' country and western music and selling baby chicks." In the 1980s, the station adopted a talk format which carried it through the early '90s. In fact, WCKY was one of the early Rush Limbaugh affiliates in the country — its major claim to fame.

WSAI History

WSAI went on the air shortly after WLW originally hit the airwaves. *The Radio Station Treasury* by Tom Kneitel (CRB Research, 1986, NY) lists WSAI Cincinnati at 300 meters or 999 kHz in 1923, and later at 920 kHz. WSAI was at 1330 kHz through the '30s and '40s. WSAI eventually moved to 1360 with 5 kW. After Powell Crosley put both stations on the air, WSAI went to the U.S. Playing Card Company. In the '60s, WSAI was the top-40 powerhouse of the Midwest. In the '70s, it became a coun-

Sticker from Cincinnati's Original Hits Station.

try music station. In the '80s, it had run the gamut from country to oldies. At one point, the WSAI call was scrapped when AM 1360 was simulcasting WWNK-FM, and adopted the FM call letters. The WSAI call was picked up by 100.9 in Erlanger, Kentucky, then a religious station. They were brought back in the late '80s when WSAI returned to an oldies format. In the '90s, it was owned by Booth American, which sold its Cincinnati properties (WSAI and WWNK-FM). WWNK went to Great American Broadcasting, and WSAI went to C.R. Holdings. Under a Joint Sales Agreement with Jacor, the station took on the adult standards format recently abandoned by Florence, Kentucky's WMLX/WBND. At 5000 watts on 1360, the station brought back legendary Cincinnati performer Bob Braun, who had spent nearly a decade in California. He's still nationally visible on "Craftmatic" bed commercials and in the movie "Die Hard 2." For a while, Bob was the only live local personality on the radio station. The rest of the day, the station aired Westwood One's Adult Standards format. The story gets sticky here, when '90s-style call letter roulette started.

More Call Letter Roulette

In February 1994, C.R. Holdings purchased WCKY from the Dille Corporation. Jacor bought out the "intellectual properties" of WCKY. The call letters of WCKY were moved from 1530 to 550 (which Jacor had purchased from Great American in 1992 and changed the calls from WKRC to WLWA). They also moved some of the programming, including Rush Limbaugh, to 550. For a week, all you could hear on 1530 were "telephone intercept" tones and the message, "The number you have reached — 1530 — is no longer in operation. The new number is 550." This ran continuously. One week later, the simulcast began with WSAI (1360) and the adult standards format. The week after that, the WSAI call and the format went to 1530. The station had its full live, local staff at that time with Bob Braun in the morning, Bill Wamsley (from WCKY), Wirt Cain (from WCPO-TV), James Francis Patrick O'Neill (from WLW, WLYK, etc.), and "Maureen in the Evening" from WRRM. The 1360 frequency picked up the call WAOZ and broadcast "Radio Aahs." Eventually, the call letters of 1360 were changed to WAZU and Radio Aahs was replaced by various talk programming and religion at night.

The WCKY call stayed at 550 until Jacor purchased the rest of Great American in 1997. Part of the purchase was WKRC-TV, the parent TV station of 550 AM. The WKRC calls went back to 550 in June of 1997. But the WCKY calls didn't disappear. They were "parked" on a silent frequency in Lima, Ohio, for a year. In January of 1998, they were brought back to Cincinnati, only this time to 1360 when the format changed to all-sports.

WSAI Today

The adult standards format hasn't changed much since 1994, with the exception of the 50,000-watt skywave signal being utilized overnight for religious programming. WSAI was LMA'd by Jacor in 1998, and the license transferred earlier this year. The format holds an important place in the heart of WSAI CEO Randy Michaels, who is one of the

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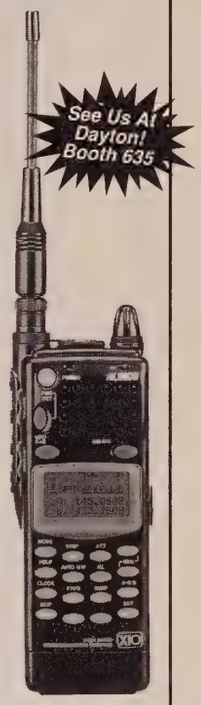

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Applied For Permits To Construct New FM Stations

AK	Deadhorse	88.1 MHz	
AL	Union Springs	91.5 MHz	
AR	Marked Tree	90.1 MHz	750 watts
CA	Dorrington	89.1 MHz	200 watts
CA	East Sonora	89.5 MHz	
CA	Hams Station	90.1 MHz	100 watts
CO	Craig	90.1 MHz	
CO	Hayden	89.7 MHz	
CO	Laytonville	91.9 MHz	
CO	Starkville	91.1 MHz	
CO	Steamboat Springs	89.3 MHz	
CO	Steamboat Springs	90.3 MHz	
DE	Harrington	88.7 MHz	
FL	Favorita	91.1 MHz	1.3 kW
GA	La Grange	91.9 MHz	
HI	Honolulu	90.3 MHz	
IA	Marshalltown	91.5 MHz	14.5 kW
IA	Oskaloosa	90.5 MHz	
IA	Waverly	89.9 MHz	100 watts
ID	Idaho Falls	89.3 MHz	
ID	Sun Valley	89.3 MHz	
IL	Bristol	88.7 MHz	
IL	Danville	88.3 MHz	
IL	Fairfield	88.7 MHz	
IL	Vandalia	91.7 MHz	
IN	Banville	89.1 MHz	
IN	Greencastle	90.5 MHz	
IN	Ladoga	89.1 MHz	
KS	Enterprise	90.5 MHz	250 watts
KS	Independence	88.5 MHz	
KS	Independence	90.9 MHz	18 kW
KY	Madisonville	91.7 MHz	
KY	Morehead	88.5 MHz	250 watts
LA	Lake Providence	89.7 MHz	28kW
MA	Winchendon	91.1 MHz	
MD	Denton	88.7 MHz	25 kW
MD	Oakland	88.9 MHz	
MI	Adrian	90.1 MHz	
MI	Gagetown	88.5 MHz	6 kW
MI	Gaylord	88.1 MHz	3 kW
MI	Ironwood	88.3 MHz	
MI	Lake City	104.9 MHz	
MI	Level Park	91.9 MHz	
MI	Michigamme	88.1 MHz	
MI	Sault Ste. Marie	102.3 MHz	22.5 Kw
MI	Spring Harbor	89.3 MHz	2.5 kW
MN	Albert Lea	90.1 MHz	
MN	Fergus Falls	89.7 MHz	
MN	Fergus Falls	91.5 MHz	
MN	Glyndon	89.5 MHz	
MN	Grand Marais	88.7 MHz	
MN	Grand Marais	89.7 MHz	
MN	Hayfield	90.1 MHz	
MN	International Falls	91.9 MHz	1.5 kW
MN	Rochester	89.9 MHz	
MN	Windom	90.9 MHz	
MN	Worthington	90.1 MHz	
MO	Salem	91.7 MHz	
MS	Forest	91.7 MHz	250 watts
MS	Waynesboro	89.7 MHz	100 watts
MT	Lewiston	91.1 MHz	
ND	Horace	89.5 MHz	
NE	Grand Island	90.7 MHz	250 watts
NE	Juniata	90.9 MHz	
NJ	Chester	88.1 MHz	
NJ	Hanover	91.7 MHz	
NY	Arcade	89.5 MHz	
OH	N. Kingsville	107.5 MHz	
OH	Norwalk	90.7 MHz	
OH	Sandusky	88.5 MHz	7.7 kW
OR	Bend	89.3 MHz	
OR	Bend	90.3 MHz	2.15 kW
OR	Bend	90.5 MHz	
OR	Cave Junction	88.7 MHz	
OR	Deschutes River Wood	89.3 MHz	
OR	Gleneden Beach	88.5 MHz	100 watts
OR	Gleneden Beach	89.3 MHz	210 watts
OR	La Pine	89.9 MHz	410 watts
OR	Redmond	89.3 MHz	
OR	Selma	88.7 MHz	1.7 kW
OR	Tillamook	91.1 MHz	140 watts
TX	Byrne	88.5 MHz	
TX	Camp Wood	89.7 MHz	
TX	Mertzon	91.9 MHz	6.5 kW
WA	Olympia	90.1 MHz	100 watts
WI	Sturgeon Bay	91.3 MHz	4.8 kW
WY	Jackson	88.7 MHz	175 watts

Granted Permits To Construct New FM Stations

IA	Mitchellville	88.9 MHz
NM	Raton	96.5 MHz
PA	Honesdale	101.3 MHz (WGGY booster)
TX	Lamesa	91.3 MHz

New FM Licenses Issued

KLVS-FM	Grass Valley, CA	99.3 MHz
KSEA	Greenfield, CA	107.9 MHz
KVTY	Lewiston, ID	105.1 MHz
KXEZ	Farmersville, TX	92.1 MHz
KZAM	Ganado, TX	104.7 MHz
WCOG	Galeton, PA	100.7 MHz
WRRH	Homigueros, PR	106.1 MHz

Cancelled

KCGM	Scobey, MT	95.7 MHz
KMGK	Glenwood, MN	107.1 MHz
KMSR	Sauk Center, MN	94.3 MHz
KOCL	Arthur, ND	96.7 MHz
KRHS	Overland, OR	90.1 MHz
KSTQ	Alexandria, MN	99.3 MHz
WSTA-FM	Charlotte Amalie, VI	102.1 MHz

Reinstated

WDXI	Jackson, TN	1310 kHz
WJKM	Hartsville, TN	1090 kHz

Changed AM Facilities

KKTR	Costa Mesa, CA	1650 kHz Changed community of license & power
KUYO	Evansville, WY	830 kHz Changed power

Seeking FM Facility Changes

KNTU	Denton, TX	88.1 MHz	Seeks to change community
WPUM	Rensselaer, IN	90.5 MHz	Seeks to change frequency

Pending AM Call Letter Changes

New	Old	
KYFV	KNAL	Victoria, TX
WWTR	WSPW	Bridgewater Twp., NJ

Changed AM Call Letters

New	Old	
KADZ	KAYK	Arvada, CO
KAVC	KVOY	Mojave, CA
KDDZ	KQXI	Arvada, CO
KGMZ	KULA	Honolulu, HI
KHIT	KPTT	Reno, NV
KJQI	KKHI	San Rafael, CA
KNKI	KAAM	Plano, TX
KPTT	KHIT	Reno, NV
KSTR	KKGJ	Grand Junction, CO
KUNX	KXFS	Ventura, CA
WBNW	WADN	Concord, MA
WDDZ	WTAU	Zion, IL
WFPB	WKPE	Orleans, MA
WHHQ	WKPP	Elizabethton, TN
WJJB	WCLZ	Brunswick, ME
WMYF	WTMN	Portsmouth, NH
WNDV	WNDU	South Bend, IN
WRDZ	WTAQ	La Grange, IL
WSDZ	WIBV	Belleville, IL
WTOF	WRCW	Canton, OH
WWJV	WCTJ	Camp Lejeune, NC
WWMK	WMIH	Cleveland, OH
WWNB	WLBO	New Bern, NC

New FM Call Letters Issued

KARW	Cut Bank, MT
KBKC	Moberly, MO
KBKF	Snyder, OK
KBKH	Ilwaco, WA
KBKU	Hettinger, ND
KBKV	Winona, TX
KBKY	Merced, CA
KFLV	Wilber, NE
KGUM-FM	Dededo, GU
KPBB	Brownfield, TX
KTMN	Cloudcroft, MN
WBCS	Jasper, GA
WBID	Wilmington, NC
WBIE	Delphos, OH
WBIK	Pleasant City, OH
WHDI	Sister Bay, WI
WHND	Sister Bay, WI
WMQZ	Colchester, IL

Pending FM Call Letter Changes

New	Old	
KLMM	KBZK	Morro Bay, CA
KLUN	KBZX	Paso Robles, CA
KMQA	KOJJ	E. Porterville, CA
WRYS-FM	WBNF	Marianna, FL

Changed FM Call Letters

New	Old	
KCGL	KFRO-FM	Gillmer, TX
KEZQ	KWWF	W. Yellowstone, MT
KGMZ-FM	KGMZ	Honolulu, HI
KJQI-FM	KKHI-FM	San Rafael, CA
KKEY	KBGQ	Harrisburg, AR
KLHK	KBJF	Shelby, MT
KRAJ	KBHM	Johannesburg, CA
KRQS	KEZF	Albuquerque, NM
KRSS	KTRX	Tarkio, MO
KSKU	KLSI	Lyons, KS
KTPW	KMQX	Springtown, TX
KWYS-FM	KEZQ	Island Park, ID
KXKU	KSKU	Lyons, KS
WAJC	WUZZ-FM	Lima, OH
WBQX	WAVX	Thomaston, ME
WFMH-FM	WXXR-FM	Holly Pond, AL
WFPB-FM	WNDV	South Bend, IN
WJLI	WCLX	McArthur, OH
WJYA	WSVP	Emporia, VA
WLOV-FM	WXKT	Signal Mtn., TN
WLRT	WBRJ	Mt. Sterling, IL
WNDV-FM	WNDU-FM	South Bend, IN
WNSY	WCHK-FM	Talking Rock, GA
WOST	WXRM	Port Charlotte, FL
WPOZ	WEAZ	Union Park, FL
WQAK	WWUC	Union City, TN
WRRS	WFMH-FM	Cullman, AL
WRYV	WMGG	Gallipolis, OH
WSHG	WILK-FM	Pittston, PA
WSTL	WVCM	Carlisle, KY
WTRH	WJLY	Ramsey, IL
WUBT	WRCX	Chicago, IL
WWLL	WYMR	Sebring, FL
WXNT	WMNM	Port Henry, NY
WXPT	KMJZ	St. Louis Park, MN
WYNY	WWXY	Briarcliff Manor, NY
WYVY	WKWT	Union City, TN

strongest advocates of AM radio in the country, if not the world.

WSAI operates live, using the Prophet Systems Audio Wizard digital storage system, through an audio console. The signal is STL'd about 10 miles to the transmitter site, still on the bluff overlooking the Ohio River from Villa Hills, Kentucky. The main transmitter is a Harris MW-50, with a Continental 10-kW backup (used very rarely). An old RCA 50-kW rig remains on site, but it's inoperable right now, a victim of the old PCB's scare of the '70s. The transmitters feed a four-tower array. WSAI is non-directional until California sunset year-round (protecting KFPK in Sacramento). The nighttime pattern was adjusted by Mother Nature in 1987 when a tornado rolled through, tearing down two of the four towers. When the site was rebuilt, engineering decided

to tighten the pattern a little, figuring that WSAI didn't really need to reach Cuba. But the station still puts a strong signal over the entire East coast at night from the Florida Keys to Nova Scotia, which is appreciated by the Cincinnati Cyclones hockey team, as many of the players have family in Canada who can follow their play-by-play on WSAI.

WSAI welcomes reception reports. They can be sent to Dave Mason or Ted Kendrick at 1111 St. Gregory Street, Cincinnati OH 45202. In conclusion, Mason writes, "Since we're the only adult standards blowtorch, I'm hoping that *Popular Communications* readers enjoy reading about our long, convoluted history. I've personally answered a good deal of our DX reports. Normally, we send a postcard with our nighttime pattern on it, and would be happy to send off any other information people would request. And I'm sure Sandy Megowen (our evening hostess) would enjoy hearing from those pulling us in at 1-888-422-7701."

QSL Information

1161 Radio Malaysia, Sarawak, full detailed letter with frequency list in 200 days for taped report, signed Mohd. Hulman Abdollah for Dir. of BCing. Address: Radio Malaysia Sarawak, Broadcasting House, Jalan P. Ramlee 93614, Kuching, Sarawak, Malaysia. My 5th MW Malay QSL, two from Sabah and three from Sarawak. (Martin, OR)

1590 KIHM Sun Valley Nevada, veri letter in 21 days signed Jerry J. Usher — Director of Programming. Address: Immaculate Heart Radio, P.O. Box 70685, Reno, NV 89570. In the same envelope, received a letter for their station KSMH Auburn, California, on 1620, also signed by Jerry J. Usher. (Martin, OR)

Broadcast Loggings

All times are UTC.

621 RNE1 synchros, Canary Islands/ Spain, at 2240 absolutely slamming in with talk in Spanish and a Radio Nacional de Espana mention; strongest TA at the time. (Connelly, MA)

690 R. Progreso, Jovellanos, Cuba, at 0400 with pop music, has also been noted relaying R.Reloj later at night, over R.Recuerdos-Colombia. Both have been the dominant stations on 690 with CBF off. (Conti, NH)

750 CJVR Melfort , Sas, at 1140 good over KXL with "Today's Country on 750 CJVR" IDs, C&W music. Never heard on 750 before, logged and QSL'd years ago on 1420. (Martin, OR)

900 WJJB Brunswick, Maine, ex-WCLZ is now simulcasting "WJAB" sports radio from WJAE Westbrook-Portland on 1440. (Gilbert,ME)

1190 WLIB New York, New York, good most nights, on the air full-time with Caribbean and soca music programs. WOWO Ft. Wayne nighttime power is cut to under 10 kW with a directional pattern protecting WLIB. (Conti, NH)

1340 KJAZ Oroville, California, heard with jazz music and "1340, KJAZ" ID, then going into info on California history at 0705. (Martin, OR)

1583.6 RadiOle, Ceuta at 0043 with a Spanish vocal; to fair peak. The SER Spaniards on 1584.0 were generally inaudible. (Connelly, MA)

1690 KDDZ Arvada, Colorado, ex-KAYK, at 0720 fair with Radio Disney contest promo, "Radio Disney, AM 1690" ID by a kid, through WMDM open carrier. (Conti, NH)

A big thanks to Dave Mason for all the info on WCKY and WSAI. Thanks also to our regular reporters Mark Connelly, Bob Gilbert, and Patrick Martin. 73 ■

WSAI Program Schedule

Mon–Fri
5 a.m. "Bucks" Braun and Don Herman
6 a.m. Bob Braun, "Bucks" (his nephew), and Don Herman
10 a.m. Bill Wamsley
12 noon Wirt Cain
3 p.m. James Francis Patrick O'Neill
7 p.m. Sandy Megowen and the WSAI Night Shift
10 p.m. "When Radio Was"
11 p.m. Sandy Megowen and the WSAI Night Shift
11:30 p.m.–5 a.m. Various religious programming

Saturday
5 a.m. "Bucks" Braun
10 a.m. Wirt Cain
2 p.m. "Maureen"
7 p.m. "Saturday Swing with Mark Magistrelli"
11:45 p.m.–7 a.m. Various religious programming

Sunday
7 a.m. "Close-Up with Don Herman"
7:30 a.m. Religion
9 a.m. "The Sounds of Sinatra"
11 a.m. Dave Lee — the man of 1,000 voices
5 p.m. "Sunday Swing" with Mark Magistrelli
7 p.m. "Evening at the Pops" with Cincinnati Pops conductor Erich Kunzel
8 p.m. Various religious programming

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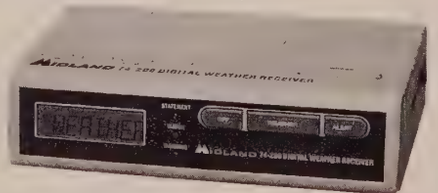

74200 S.A.M.E. Weather Monitor Pictured
CIRCLE 70 ON READER SERVICE CARD

The Pirate's Den

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

From Barnyard Effects To Clinton Spoofs, It's There For The Listening

Let's get right into another round of logs! Remember, we need your pirate logs — send 'em to me directly at *Pop'Comm* headquarters.

WSRR, 6955 USB heard at 1408 with some easy listening tunes and an ID. Another day at 1315 with a repeat of the previous program. Still another logging some days later at 1730 with what they said was the First Night Fellowship International broadcast from the church of the same name in Buffalo, New York, with Pastor Tony W. Robertson. Another day at 1625 with a repeat. I guess he did two shows — one IDed as WSRR and one as Solid Rock Radio. (Dick Pearce, VT)

Friday Radio, 6955 USB at 2130 with lots of "It's Frrriiidaaaayyy" shouts, many comments about the drudgery of the workplace, rock tunes. Fast-paced, high energy program. (Pearce, VT)

RFS on 6955 at 1357 with parodies on songs. They offered a special RFS ruler in exchange for a tape of the program. (Pierce, VT)

Solid Rock Radio, 6955 USB at 1425 with an interview with a female singer, then gospel-sounding music. They mentioned simulcasting on 6955 shortwave and 101.5 FM. (Pearce, VT)

The Gas Man on **6950.7** monitored at 1458. Lost my notes on this one, but recall hearing a couple of unidentified tunes and the remark "the preceding was a parody production of the Fox." (Pearce, VT)

Office de Radio et TV du Quebec, 6955 LSB monitored at 1550 in French with a number of tunes in French, then English. (Pearce, VT)

WGLR, 6955 USB heard at 1554 with another pirate underneath, talk about DC Comics, Willie Nelson-sounding voice which they said they recorded off an old juke box in the cellar. They also mentioned Neal Wolfish, whom they said was the only person to thank them for his QSL. Also with a repeat 1520 a few days later. (Pearce, VT)

WREC — 6960 USB with parody songs. Closed with "Now it's time to say good-bye. Duuhh, where are we going?" Again at 2040 with the "Pirate's Life for Me" song and several song parodies. The warble jammer on 6959 was strong enough to spill onto 6955. Also another day at 1550. Still another time at 1926 with a Sgt. Friday bit. (Pearce, VT)

Radio Free Brooklyn, 6955 at 1707 with songs by the Who, Hollies, Donovan, Monkees, Blue Tornadoes, and the Dave Clark Five. The host, "Tony," said he was new and that he'd like to write to listeners if we "give our address to that guy who does *Pop'Comm.*" (*C'mon, folks. Give me a break! — Ed*)

Up Your Radio Shortwave — 6955 USB monitored at 1735 with lots of political satire, said the program was the Alan Sherman Project. "Before there was Weird Al Yankovich, there was weird Alan Sherman."

Radio City (tentative) on **6950 USB** at 2015 with a number of commercial parodies, including Dial a (calendar) Date, Bowling for Burgers, and real commercial for Offshore Echoes magazine. "Television must be a medium because it's never rare or well done." (Pearce, VT)

Friday Radio *sent this QSL to Kenny Love for his reception a year ago.*

Radio Pepperland, tentative, **6955.15** monitored at 1328, in one of the worst pileups I've ever heard. Heard a fairly clear ID that sounded like Radio Pepperland. (Pearce, VT)

RFS on 6955 at 1418 with various song parodies, songs by Steve Miller, Led Zeppelin, a country number. (Pearce, VT)

Cat in the Hat — 6953 LSB at 1815, including a calypsos tune and sign-off giving the Providence address in rhyme. (Pearce, VT)

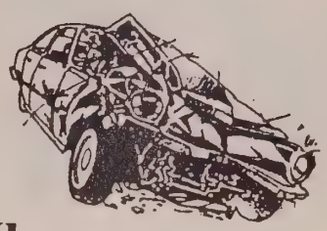
Radio Boston, 6955 at 1846 with lots of co-host chat and listener mail, even mentioning that mine was on the way. Tune by "Third World" and another by "Culture." Claimed to run 1700 watts. (Pearce, VT)

Voice of Indigestion, 6955 at 1825 playing lots of artists being imitated by other artists. Also a tune with a lot of barnyard effects. (Pearce, VT)

The Talking Pirate — 6955 USB at 2100 with lots of Jeff Foxworthy stuff and spoof of Clinton. (Pearce, VT)

WKND — 6954.8 at 1445. Radio Animal with a religious program! Talking Heads tune, Iron Butterfly, Stones, Chicago. (Pearce, VT)

FHX, 6955.10 USB heard at 1950 talking of rejecting a reception report because the writer heard them on 6954.999 when they were actually on 6954.99995. Claimed to be broadcasting with an ERP of 100 watts from south central North America. (Pearce, VT)



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CIRCLE 73 ON READER SERVICE CARD

WBIG, 6955 at 1749 with Big Mike featuring "The Ministry." Offering QSL for a "detailed report and three unlicked stamps to WBIG, The BIG One, P.O. Box 1, Belfast, New York 14711. (Brandon Artman, PA) 1950 with FHX at the same time. "It's a green day on WBIG" and Belfast address. (Pearce, VT)

Radio Eclipse, 6955.1 USB at 1707 just at sign-off saying lots of things planned for the year. Also at 1805 with host Steve Man and the "phone freak of the week." They said no drop yet, but will confirm reports which appear in A*C*E. (Pearce, VT)

Voice of Bizarro World, 6955 LSB at 1618, "Now going to play the Bizarro World's national anthem, and if you don't want to receive a shortwave listener's report from Exum, then don't send a QSL to the Huntsville address." Commercial for DAMM — Drunk Drivers Against Mad Mothers. (Pearce, VT)

Radio Three, 6955 SSB monitored at 2042 with rock. The announcer stressed that the only way to get a QSL was to send a report to the A*C*E bulletin. (Dave Jeffery, NY)

Stereo Sound Radio, 6955 USB at 2159 with Colonel Billy-Bob playing rock and later contending with a heckler identifying himself as Slick Willy. Shortly after that started Stereo Sound left the air. (Jeffery, NY).

WARR, 6955 USB at 0112 with rock dedications, instructions for building a pirate TV station for under $60 using RadioShack parts. (Artman, PA)

Radio Doomsday, tentative, 6955 LSB at 1903 with someone repeating "That's Grrrreat" over and over ad nauseum. Lots of barnyard sounds, "Radio Doomsday would love to hear from you." Not sure about ID because also mentioned Radio KIRK(?), so perhaps a relay? (Artman, PA)

We Love WLIS, 6955 USB monitored at 1817. Only bits and pieces copied, commercial for "Main Event Movie," which featured a serial killer who killed all the popular cereal personalities like Tony the Tiger, Captain Crunch, etc. Address: P.O. Box 28413, Providence, Rhode Island 02908. (Artman, PA)

WMPR, 6955 at 2300 with a digitized voice, birds chirping, female digitized voice saying 6955 and that they played a lot of music, most of it computer music but also some from the '50s. (Mark De Paepe, N5YEY — state unknown)

We're out of space. Thanks, folks! Keep that good stuff coming my way! ■

WiNRADiO®

PC Based Wide Band Communications Receivers

Computer based communications receivers designed for a wide range of professional and amateur applications.

- Sophisticated virtual control panel
- Wide-band coverage
- Fast scanning
- Powerful tuning and scanning options
- External and internal models
- Rich variety of innovative features
- Complete multichannel systems available
- Custom solutions for radio frequency monitoring applications

Pioneering the Integration of Radio and Computers

WiNRADiO®

COMMUNICATIONS

Creating New Standards

The award-winning and immensely popular WiNRADiO WR-1000i is the world's first commercially available PC-based wide-band communications receiver. Integrating advanced radio receiver technology and the computing power of a PC, it sets a new standard in radio communications.

The synergy of radio and computing technology provides all WiNRADiO receivers with many unique features which are hard to find on conventional communications receivers. These include a rich variety of tuning and scanning options, versatile memory and database facilities, and innovative user interfaces designed for flexibility and ease of use.

WiNRADiO 1000/1500 series

The 1000/1500 series products offer cost-effective solutions for a wide variety of applications. The products come in two forms: internal ISA-bus cards, and compact external units with an RS-232 interface (PCMCIA interface optional).

Internal model (WR-1500i)

The advantages of an internal card model are in its neatness – there are no external cables required, no external interface ports are occupied, no external power supplies or extra desk space are needed. And if you wish, nobody needs to know that you have a scanning receiver hidden inside your PC!

Multichannel operation is simple to achieve, as up to eight WiNRADiO internal receivers can be used simultaneously in one PC.

External model (WR-1500e)

(Computer not included)

The advantage of an external model is in its portability – the optional PC card interface (PCMCIA) allows very fast and simple installation for any portable PC. Serial RS-232 interface is also available as standard.

The external models also feature a discriminator output.

Both models are very well shielded from PC interference. We use specially developed shielding materials and innovative design methods to prevent any interference directly entering the receiver.

WiNRADiO Software

The 1000/1500 Series software works on Windows 3.11, 95, 98 and NT. Impressive high-resolution graphics combine with a variety of useful features, all logically and intuitively laid out.

The WiNRADiO software sets new standards for computer-controlled radio receiver interfacing. Its features include automatic mode and step size selection, duplex separation, user-definable frequency offset, a rich variety of scanning modes including multiple-range scanning, virtually unlimited number of memories, and many other powerful features.

The Spectrum Scope facility displays real time activity on the bands. It is complemented by our graphic tuning facility called Visitune™ (patent pending). This facility allows you to tune the receiver continuously, using the mouse, across the frequency spectrum visible in the background.

Click on a peak and you are instantly tuned. Alternatively, keep the left button down and drag your mouse across a scanned spectrum – you will see the frequency cursor moving, the frequency display updating accordingly and the receiver will be tuned following your hand movements!

Optional Portable Power Source

Many external radio receivers neglect user convenience with respect to the availability of a suitable portable power supply. WiNRADiO provides a suitable external power source, to meet the most demanding standards.

The WiNRADiO Portable Power Source is based on high-capacity, long-life nickel-metal-hydride rechargeable batteries, coupled with intelligent, fast-charging circuitry which saves the battery life and guarantees maximum charging capacity. (Suitable for external models WR-1000e, WR-1500e and WR-3100e).

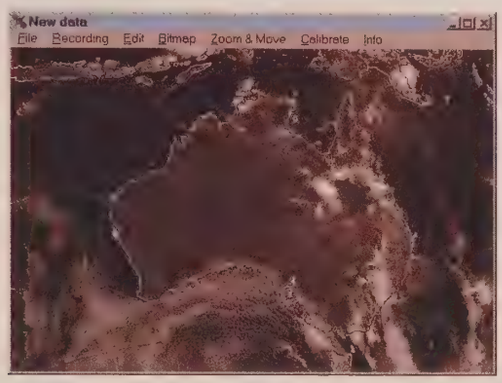
Optional PC Card Interface

The PC Card interface (PCMCIA Type II) makes connecting a WiNRADiO receiver to a laptop or a notebook computer especially easy. The Plug-n-Play facility automatically registers the card, and the installation is very simple indeed. (Suitable for external models WR-1000e, WR-1500e and WR-3100e).

The PC Card Interface comes with a cable to suit

Optional Digital Suite Software

The optional WiNRADiO Digital Suite is a collection of digital signal processing modules. Together, they represent a breakthrough in reception of digitally coded radio communications - never before has such a comprehensive collection been made available at such low cost and so elegantly integrated with a PC-based radio receiver.

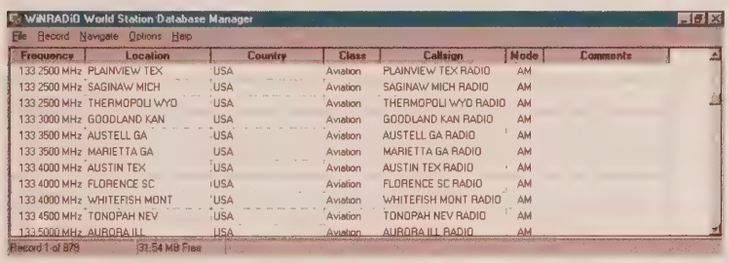


The WiNRADiO Digital Suite expands the power of a WiNRADiO receiver with numerous digital processing facilities, including:

- WEFAX (Satellite Weather Fax)
- HF Fax
- Packet Radio
- Aircraft Addressing and Reporting System (ACARS)
- Digital Tone Multi-Frequency Signalling (DTMF)
- Continuous Tone Coded Squelch System (CTCSS)
- Signal Classifier
- Audio Oscilloscope and Spectrum Analyzer
- Squelch-controlled Audio Recorder and Playback

Optional Frequency Database Manager Software

The optional World Station Database Manager greatly simplifies the maintenance of frequency databases. It is fully integrated with the receiver software, and allows for instantaneous tuning to stations while browsing or searching within a database. Similarly, an unknown frequency can be readily indentified by invoking the Database Manager.


WiNRADiO World Station Database Manager
File Record Navigate Options Help
Frequency Location Country Class Callsign Mode Comments
133 2500 MHz PLAINVIEW TEX USA Aviation PLAINVIEW TEX RADIO AM
133 2500 MHz SAGINAW MICH USA Aviation SAGINAW MICH RADIO AM
133 2500 MHz THERMOPOLI WYO USA Aviation THERMOPOLI WYO RADIO AM
133 3000 MHz GOODLAND KAN USA Aviation GOODLAND KAN RADIO AM
133 3500 MHz AUSTELL GA USA Aviation AUSTELL GA RADIO AM
133 3500 MHz MARIETTA GA USA Aviation MARIETTA GA RADIO AM
133 4000 MHz AUSTIN TEX USA Aviation AUSTIN TEX RADIO AM
133 4000 MHz FLORENCE SC USA Aviation FLORENCE SC RADIO AM
133 4000 MHz WHITEFISH MONT USA Aviation WHITEFISH MONT RADIO AM
133 4500 MHz TONOPAH NEV USA Aviation TONOPAH NEV RADIO AM
133 5000 MHz AURORA ILL USA Aviation AURORA ILL RADIO AM
Record 1 of 879
31.54 MB Free

The user can add, delete or edit database records as well as import data from other databases. The software comes with a ready to use database of over 300,000 stations world-wide.

WiNRADiO 3100 series

Designed for goverment, military, security, surveillance and industrial applications, the WiNRADiO 3100 series puts advanced radio receiver technology directly on a personal computer platform to create a complete spectrum surveillance and monitoring system.

WR-3100i-DSP internal receiver

The WiNRADiO 3100 series receivers come in two forms: internal ISA-bus cards, and compact external units with an RS-232 interface (PCMCIA interface is optional). A dedicated Digital Signal Processor (available on the internal model only), is used for real-time audio recording and playback. Recording can be controlled manually or automatically using time presets or signal level thresholds.

WiNRADiO 3100 series receivers feature a practically unlimited number of memories, sophisticated search facilities, group allocations, automatic memory writing, exclusion list, frequency logging and much more. The in-built Task Manager makes it possible to program the receiver to perform many tasks automatically, and make decisions based on user-specified conditions. Up to eight independently operating receivers can be controlled by a single PC. The WiNRADiO 3100 series receivers represent an ideal solution for high-performance automatic monitoring systems.

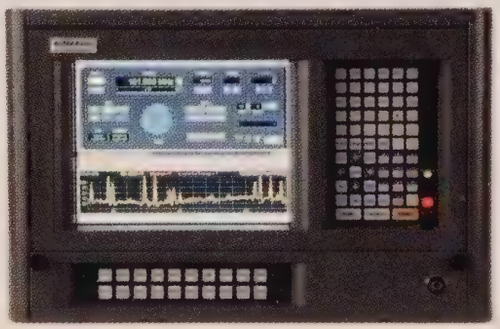
Complete Multichannel Systems

Until recently, the task of multichannel radio frequency surveillance and monitoring involved a number of separate radio receivers, audio recorders and other discrete components interconnected into bulky and expensive systems.

WiNRADiO Multichannel Systems provide an elegant, fully integrated solution, specifically designed for computer-controlled automatic monitoring of frequencies ranging from below the AM broadcast band up to low microwave, in all major modulation modes.

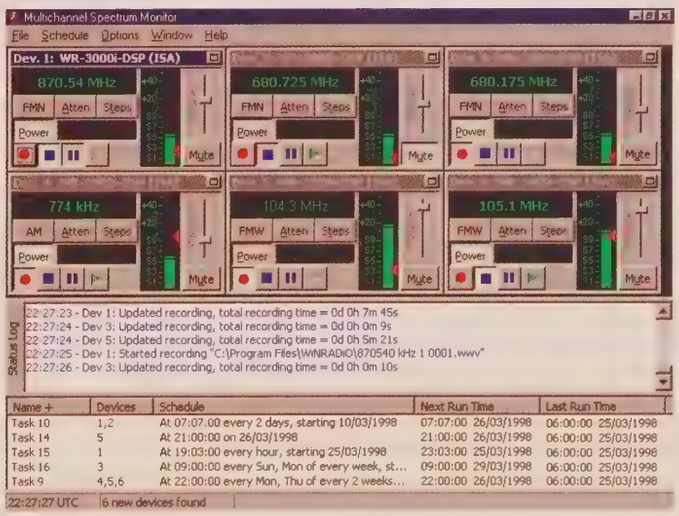
Available in several configurations to suit specific requirements for radio frequency monitoring, the systems are designed to monitor radio frequencies on multiple channels simultaneously, record digitized signals on the hard disk for easy later retrieval, and perform automatic decisions based on received signals.

WiNRADiO Multichannel Systems can be operated either manually or autonomously in unmanned remote locations. Remote operation and networking facilities are also available.



MS-8006 (six channel) Surveillance System

User-selectable audio compression methods make it possible to store weeks or months of continuous, simultaneous recording of all channels on the in-built hard disk.


Multichannel Spectrum Monitor
File Schedule Options Window Help
Dev. 1: WR-3000i-DSP (ISA)
870.54 MHz
680.725 MHz
680.175 MHz
774 kHz
104.3 MHz
105.1 MHz
Status Log
22:27:23 - Dev 1: Updated recording, total recording time = 0d 0h 7m 45s
22:27:24 - Dev 3: Updated recording, total recording time = 0d 0h 0m 9s
22:27:24 - Dev 5: Updated recording, total recording time = 0d 0h 5m 21s
22:27:25 - Dev 1: Started recording "C:\Program Files\WiNRADiO\870540 kHz 1 0001.wwv"
22:27:26 - Dev 3: Updated recording, total recording time = 0d 0h 0m 10s
Name Devices Schedule Next Run Time Last Run Time
Task 10 1,2 At 07:07:00 every 2 days, starting 10/03/1998 07:07:00 26/03/1998 06:00:00 25/03/1998
Task 14 5 At 21:00:00 on 26/03/1998 21:00:00 26/03/1998 06:00:00 25/03/1998
Task 15 1 At 19:03:00 every hour, starting 25/03/1998 23:03:00 25/03/1998 06:00:00 25/03/1998
Task 16 3 At 09:00:00 every Sun, Mon of every week, st... 09:00:00 29/03/1998 06:00:00 25/03/1998
Task 9 4,5,6 At 22:00:00 every Mon, Thu of every 2 weeks... 22:00:00 26/03/1998 06:00:00 25/03/1998
22:27:27 UTC
6 new devices found

WiNRADiO Multichannel Monitoring System software allows the user to observe the status of all received channels on a single screen using virtual "micropanels" for each channel, each one of them fully expandable to a full size panel .

Each expanded control panel allows for indepedent operation of a high-performance scanning receiver with sophisticated functions such as automatic task scheduler, spectrum scope, DSP signal conditioner, signal strength recorder, programmable audio recorder, and many other features.

Specifications

Model Numbers	WR-1000i/WR-1000e	WR-1500i/WR-1500e	WR-3100i-DSP/WR-3100e
Type	Triple superheterodyne	Triple superheterodyne	Triple superheterodyne
Frequency range	0.5-1300MHz*	0.15-1500MHz*	0.15-1500MHz*
Modes	AM,FM-N, FM-W, SSB/CW	AM,FM-N,FM-W,USB, LSB, CW	AM,FM-N,FM-W,USB, LSB, CW
Tuning steps	100Hz (5Hz BFO)	100 Hz (1Hz USB/LSB/CW)	100 Hz (1Hz USB/LSB/CW)
IF shift	-	+/- 2kHz	+/- 2kHz
Audio output	200mW into 8 ohm load	200mW into 8 ohm load	200mW into 8 ohm load
Antenna connection	50 ohm BNC	50 ohm BNC	50 ohm BNC
Dynamic range	65 dB	65 dB	85 dB
Selectivity			
SSB,CW	6kHz/-6dB	2.5 kHz/ -6dB	2.5kHz/-6dB
AM	6kHz/-6dB	6 kHz/ -6dB	6 kHz/-6dB
FM-N	17kHz/-6dB	17kHz/-6dB	17 kHz/-6dB
FM-W	230kHz/-6dB	230kHz/-6dB	230 kHz/-6dB

** In some countries, certain frequencies may be omitted to comply with local government regulations.*

Typical Sensitivity for WR-1000i/WR-1000e receivers

Frequency Range	AM	CW/SSB	FM-N	FM-W
0.5 - 1.5MHz	5.0µV	2.5µV	1.0µV	-
1.5MHz - 30MHz	1.0µV	0.5µV	0.5µV	-
30 - 1000MHz	1.5µV	0.7µV	0.5µV	2.0µV
1.0 - 1.3GHz	5.0µV	2.5µV	2.0µV	4.0µV

Typical Sensitivity for WR-1500i/WR-1500e receivers

Frequency Range	AM [1]	CW/SSB	FM-N [2]	FM-W [2]
0.15 - 0.5MHz	[3]	[3]	[3]	-
0.5 - 1.8MHz	5.0µV	0.9µV	1.0µV	-
1.8 - 30MHz	1.0µV	0.3µV	0.5µV	-
30 - 1000MHz	1.5µV	0.3µV	0.35µV	1.8µV
1.0 - 1.5GHz	1.9µV	0.35µV	0.4µV	3.5µV

Typical Sensitivity for WR-3100i-DSP/WR-3100e receivers

Frequency Range	AM [1]	CW/SSB [1]	FM-N [2]	FM-W [2]
0.15 - 0.499MHz	[3]	[3]	[3]	-
0.5 - 1.7999MHz	5.0µV	0.9µV	0.9µV	-
1.8 - 29.9999MHz	1.0µV	0.3µV	0.35µV	-
30 - 999.9999MHz	1.0µV	0.3µV	0.35µV	1.0µV
1.0 - 1.5GHz	1.5µV	0.35µV	0.4µV	2.0µV

[1] For 10dB S+N/N *[2] For 12dB SINAD* *[3] Not specified*

	WR-1000i/WR-1500i/WR-3100i	WR-1000e/WR-1500e/WR-3100e
Power supply	internal (PC supplied)	12V DC +/- 15%
Dimensions	114x290x18mm (4.5x11.4x0.7in)	122x216x48mm (4.8x8.5x1.8in)
In-built speaker	-	8 ohm 0.1W

Ordering codes

• WR-1000i	WiNRADiO WR-1000i receiver (internal)
• WR-1000e	WiNRADiO WR-1000e receiver (external)
• WR-1500i	WiNRADiO WR-1500i receiver (internal)
• WR-1500e	WiNRADiO WR-1500e receiver (external
• WR-3100i-DSP	WiNRADiO WR-3100i-DSP (internal)
• WR-3100e	WiNRADiO WR-3100e (external)
• WR-DBM	WiNRADiO Database Manager Option
• WR-DS	WiNRADiO Digital Suite Option
• WR-PCA	WiNRADiO PC Card Adaptor Option
• WR-PPS	WiNRADiO Portable Power Source
• MS-8003	Multichannel Monitoring System (3 channel)
• MS-8006	Multichannel Monitoring System (6 channel)

WiNRADiO®
COMMUNICATIONS

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ScanTech

BY KEN REISS
<armadillo1@aol.com>

TRUNKING, TIPS, TECHNIQUES, MODS AND COMPUTERS

The Inside Scoop On Tones, And Looking At Personal Data Assistants

Whether we like it or not, tones, loud and obnoxious as they can be, are a big part of two-way radio communications. There are tones that are used to signal the beginning of a fire call, tones used to activate this or that pager, and tones used to dial telephone calls. And those are just the *common* ones.

There's another whole group of tones that we don't often hear. It's probably just as well since we complain so much about the first group. These are the so-called "sub-audible" tones that are filtered out of the audio of most receivers. These tones are used for controlling interference and keeping unwanted traffic off of repeaters and other communications systems. Let's have a look at these, and some ways that they might be of use to the scanner enthusiast.

The new OptoTrakker (see "Product Spotlight" this month for a complete review) can decode many sub-audible, as well as audible, tone formats. It's an excellent stand-alone decoder that can also interface with the radio and computer-control software on certain radios.

My first encounter with sub-audible tones was pretty scary. Not long after I first got into scanning and was just learning the local police lingo — and the radio crowd, for that matter— a friend who was on the police force came by and proudly told me and the guy across the street who got me into this hobby in the first place, that we wouldn't be able to listen to the police much longer. At midnight on an upcoming date, the department was switching to "Private Line." He said the police cars would be going to the radio shop to have this installed. His bottom line: "Sorry guys, but you'll have to find another hobby."

Oh man — how could they do that? And I'd just bought my first radio that scanned too — what a bummer! Well, I guess there was the fire departments and a few others that we'd probably be able to listen to for a little while, until this private-whatever-it-was caught on.

So we both immersed ourselves in listening to the police while we still could. It was probably a good thing in a way, because with all that intense listening, we learned a lot about how the department operates, its ID numbers, and 10-codes. Then the dreaded night came. So we listened up until midnight. And then . . .

And then nothing changed. What happened? How could we still be hearing the dispatcher? Maybe they had technical difficulties with the system and didn't switch over. We simply assumed there must be some problem that they'll probably have fixed by morning.

In the morning, I turned the radio on to hear more of the same — the same old familiar voices and callsigns. KLU-205 never sounded so good! It was a few days before we found our friend again and started giving him the third degree. What's up? Why isn't it working? When are they going to switch? Amazingly, he said they *had* made the change.

Yes, and in fact we still listen to that same frequency, although the callsign had changed as a result of the paperwork reduction act (or some other federal nonsense). It turns out that "Private Line" is Motorola's trademark name for a feature known as CTCSS, or Continuous Tone Code Squelch System. It's not designed to keep other people from listening, it's to keep the users of the two-way radios (remember, the guys who are licensed for that frequency?) from having to listen to somebody else. GE refers to this same system as "Channel Guard."

The way it works is pretty simple if you think about it for a second from the vantage point of the two-way radio users, not the scanner folks. There are only so many frequencies available in a given area, and lots of folks want to use them. In addition, as more and more transmitters go on the air, there's a much better chance that someone only a few kHz away from your channel will wind up geographically close to your system.

How CTCSS Works

In a traditional system, the receiver simply waits until it senses a radio signal and then opens the squelch and amplifies the signal, regardless of the "signal." It could be noise produced from some outside source, or it could be a transmitter that's close to your frequency, but not quite on channel. If it's strong enough, or close enough to your receiver, you're going to hear it. Of course, you can turn the squelch level up — to a point. Eventually, you'll squelch out the things you want to hear.

With CTCSS, the receiver doesn't use the carrier level at all. It's looking for the correct tone — a low level (below the level of our hearing, for most of us) signal that acts like a "password" and says to the receiver "this signal is for you." Any interfering signal, or even other

"It's not designed to keep other people from listening, it's to keep the users of the two-way radios. . . from having to listen to somebody else."

users on the same frequency that don't have our "password," won't get through. The tone is filtered from the audio that comes out of the speaker, so there's not much chance of us hearing anything.

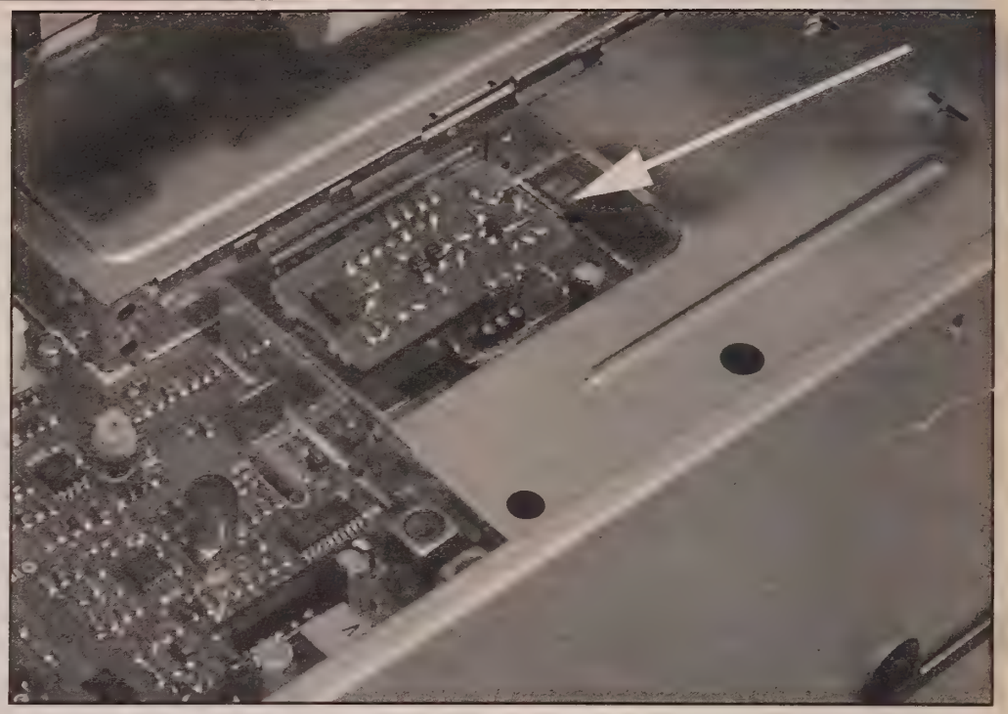
The interference, or a signal a few kHz away, won't have the right tone. Even if it has the tone, it will be distorted enough that it won't be recognized. So without the correct tone, the receiver stays squelched even in the presence of very strong signals. Pretty cool. The new and improved version of this uses a digital code, rather than a single tone, and so there are more combinations available. This one is sometimes referred to by its Motorola name of "DPL"™ or Digital Private Line, but the official technology is called "DCS" or Digital Code Squelch.

So as scanner listeners, why do we care? Well, there are two important things we can do with CTCSS or DCS information. One is that we can use it just like the two-way radio users: To stop interference from getting through our receiver. If you've got a situation where two stations share a frequency, or you're getting interference from an adjoining or nearby transmitter, a CTCSS or DCS-equipped scanner can really be a treat! Of course, in order for this to work, the agency that you're trying to listen to has to be transmitting a CTCSS or DCS signal, or there won't be anything for your scanner to use as the "password."

The other thing we can do with subaudible tones is to help identify the station that's talking. If you can read the tone information from a transmitting station, it can be helpful in knowing who's transmitting, or sometimes even in identifying other users on a frequency. At a minimum, if the station you normally listen to uses a tone of 103.5 and you suddenly start seeing 123.0 tones show up, you know that you're receiving something out of the ordinary.

The Business Bands

On the business bands, CTCSS or DCS of some kind is practically a requirement. Business users have long been pioneers or guinea pigs (depending on your point of view) for new communications systems. One of the early uses of CTCSS was to allow multiple users to actually share the same frequency in the same community. It is fairly common for businesses who need to use radio communications to be able (or are forced) share a frequency with several other companies. The reasoning is that there just aren't that many frequencies to go around, and many smaller companies (some of the companies who can benefit most from two-way communications) don't have enough units or traffic to justify a full-time exclusive frequency.



Some scanners, like the popular BC-9000 from Uniden, need an optional CTCSS board installed before they can take advantage of tone squelch. Note that the 9000 only does CTCSS even with the board — DCS is not available.

So why not have Joe's Pizza Parlor share with Ralph's Plumbing? Great idea. Except that now all of Joe's people have to listen to all those plumbing calls all day, and vice versa. CTCSS can take care of that problem. If Joe has one tone, and Ralph has another, then as long as they both don't talk at once, they probably won't know each other is there. In fact, it may be possible, depending on how many units Joe and Ralph to have on the street during the day, for several other companies to share that frequency.

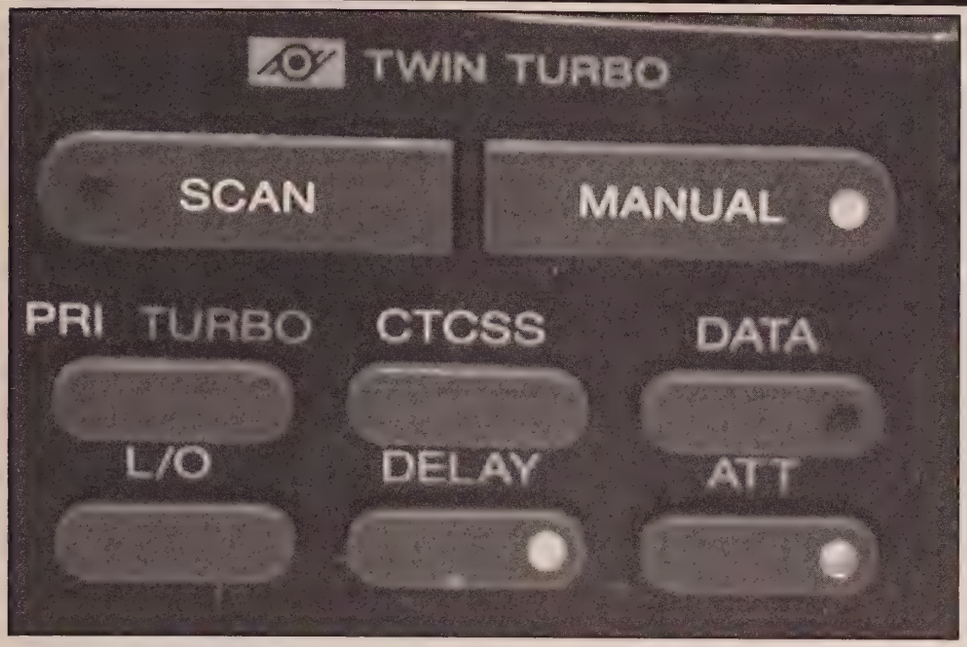
Another major advantage of tone squelch systems is the idea of frequency re-use. In other words, how close geographically can two users on the same frequency be assigned without causing interference? Public safety agencies are a great example of this problem. If my local police are on 154.845, how far away does another city have to be in order to use 154.845 for their city's police? The answer depends on the local geography, and the use of the frequency by the agencies.

If the frequency is used for dispatch operations with a big, powerful base transmitter, (we refer to it as "The Voice of St. Louis County), then another base transmitter will have to be quite a distance away so they don't interfere. About 150 miles is the ideal distance, although on some frequencies that probably doesn't quite happen. Of course, if there's a mountain range between the two cities, then the rule can change a bit. One problem that we scanner listeners can run into is being between these two. The base stations might be 75 or 100 miles apart, but if you're right in the middle, your scanner is quite likely to hear both signals. That's fine, if you're interested in both, but tone squelch can help if you're not.

If both of the users are using the channel for public safety car-to-car or low-power operations, then the frequency can be recycled a lot closer to home. The lower power transmitters won't carry as far, and with CTCSS, they can almost share a frequency like the business band folks if there isn't too much traffic.

Tone Readers

In order for your scanner to take advantage of CTCSS, either for squelch purposes or just for information, you'll have to have one of two things. You'll need either a CTCSS-capable scanner which will allow you to use the CTCSS as a



Once the board is installed, accessing CTCSS is as convenient as the front panel button.

squelch system, (the BC-9000, 895. and RELM HS-200, and MS-200 come to mind,) or a conventional scanner with a tone reader.

Tone readers come in two varieties: Units that are simply intended to read the tone and provide that information on a display of some sort, and units that can interface with both the scanner and computer software so that the audio can be controlled just like a CTCSS scanner. Obviously, if you want true tone squelch, the CTCSS scanner is the more convenient way to go, but there are some radios (particularly at the high end — go figure) that don't offer CTCSS as an option without an external reader. If you want to use one of those radios, an external reader is the way to go.

This month's "Product Spotlight" features the new OptoTrakker multi-tone reader from Optoelectronics. This is truly a deluxe external reader that can not only read the tones, but can be interfaced with your computer and software to provide true tone squelch capabilities for a receiver that doesn't otherwise have that function. You can also use it as a stand-alone reader to great advantage.

The OptoTrakker also can read trunking information from EF Johnson's LTR system (very common in the business bands) and Motorola's type II systems (very common in the public safety sector). Software and a computer connection will be required to make the radio actually follow a trunked conversation, but that's also available. In fact, the OptoTrakker is supplied with TrackStar (a scaled down version of ScanStar). which will work with Motorola systems. LTR systems will require an upgrade available directly from Signal Intelligence.

If you have an older radio, and are looking to add either a tone reader or tone control, I highly recommend this unit. Its performance as a stand-alone unit is excellent, and interfaced with the computer, it can provide functions that few other tone readers can match. Of course, performance on the computer system is directly related to your choice of software and the functions it can offer.

If you're more interested in a built-in system, you'll have more limited choices. A few radios, like the Uniden BC-9000 and RadioShack's PRO-2045 have CTCSS boards available as an add-on product. If you happen to have one of those radios, and need CTCSS, then you're in good shape. If not, then you're out of luck. A few of the newer radios, the RELM HS-200 and MS-200, come to mind, have both built-in CTCSS and DCS capabilities.

You might also look at the amateur market. While tone squelch is relatively new to scanners, it's been around on the transmitter side for some time. In many cases, these units have broad band receivers that will cover the frequencies you're interested in monitoring. One unit that has been very popular with both hams and scanner enthusiasts is Yaesu's FT-50, which has both CTCSS and DCS capabilities, as well as computer upload and download of memories.

There is also a software tone reader available. It takes audio from the recorder output or speaker output of your scanner and into the line input of your sound card. Depending on the scanner, you can usually get a good read of the sub-audible tone. The program is called WinTone and is available at <http://www.steaksandwich.com>.

"So without the correct tone, the receiver stays squelched even in the presence of very strong signals."

If you're interested in more audible tones, there are all sorts of readers (mostly external) to decode ACARS, POCSAG and GOLAY (pager modes, although there is a question about the legality of this) ,and DTMF. Lots of readers for the shortwave bands include these modes as well.

Locating Tone Information

Once you have a tone reader, or CTCSS capable scanner, you have to find the tone information for the channels you're interested in monitoring. There are a number of public safety agencies that still do not use CTCSS or DCS, but most do, especially in larger metropolitan areas, and particularly agencies that still use the VHF and UHF bands. Conventional 800 MHz systems are likely to use tones, but trunked systems do not, as they rely on the central controller for receiver control.

You may get lucky and be able to find the tone information published, or you may have to do some detective work to find them. If you have a reader, you can just sit back and wait, because the reader will report them to you. Of course, once you find them, you should send them into *Popular Communications* so we can publish them and save everyone else the work.

And there you have it! Tone squelch can really be a help to your regular scanning, particularly if you're experiencing interference problems. It can also help you with identifying unknown agencies. At least it's another piece of information you can put into the puzzle.

Putting Windows CE To Work In Your Hobby

A few years ago, Microsoft introduced the Windows CE line of handheld personal data assistants (PDAs as they are often called). For years, my company has used PDA's (although from other manufacturers) to keep track of billing and schedule information. One day, with

"You may get lucky and be able to find the tone information published, or you may have to do some detective work to find them."

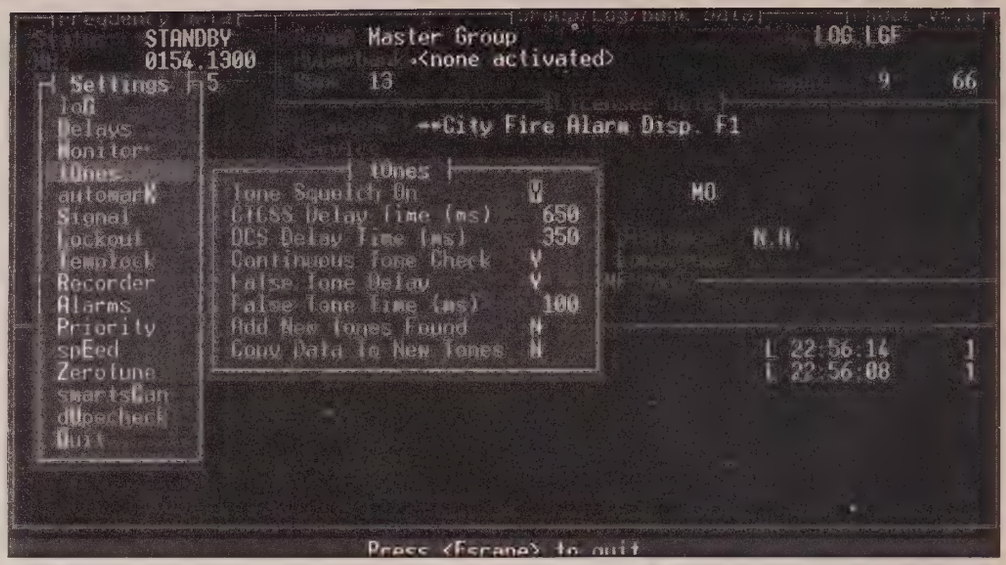
almost no notice, mine broke. Gosh that's fun — it's kind of like losing your right arm. I had almost all of the data backed up, (key word there is *almost*), but it was on a computer system back at the office, and I was in the field. That wasn't a good day, to say the least.

To make a long story short, when we went to replace the unit that had self-destructed, we found that the manufacturer had switched their high-end units to the "new" version of Windows CE. I had looked at the early units and was convinced that they could not handle our data requirements, but this new version promised a bit more functionality. There was no choice, so I quickly became a Windows CE user. About 30 minutes later, I was a convert. To say the least, the new version (2.0) had all of the software we needed, and the color backlit screens made it very easy to read the data in almost any lighting condition. It didn't take long before I was loading the device with radio information.

Let me make one thing clear: This is not a full-blown computer. It does not run Windows 9 anything, and never will. It's a limited machine that has very limited storage, and no DOS, hard disk, or floppy drives. Any external storage is accomplished through flash cards of up to about 40 megabytes. You won't be hooking this device to a radio to control it (unless somebody jumps on the bandwagon and writes a special Windows CE control program, which might be sooner than we think).

But the data is stored in a very compact format, and the applications are built into ROM, so they don't take any of your valuable storage space. In addition to the memory cards, the units have some internal storage memory, which is split between workspace (what your normal computer uses RAM for) and storage space (what a normal computer uses hard disk space for). The storage space, although limited, goes a long way because there is no space used for an operating system, and only if you choose to add applications besides those in ROM, will the storage be used for that purpose.

To give you an example, I have 16 MB total internal storage in my unit. About 9000K of that is allocated to workspace



Some of the most extensive tone-related controls are found in DataFile's Probe for the Optoscan 456, 535, and OptoCom (in OS-535 emulation mode) receiver. The Probe program will handle CTCSS, DCS, and DTMF tones with a number of convenient options available for what you do and don't want to monitor.

(so I can have multiple applications open at the same time) and the rest is storage. I have all of my billing and schedule information in it for about two years, in addition to numerous documents (a few "ScanTech" articles, which the boss doesn't know about), and my complete address book. With all this information, I still have over 3000K of free storage room available in internal memory.

I also put a 40 MB storage card in the unit. I was thinking that I would have to store all the unusual stuff there ("ScanTech" articles, etc.). What actually wound up there is a large amount (probably about 500 pages if one were to run it all out) of reference information that I've collected over the years. Included is a spreadsheet with our local frequencies (actually two of them, I'll get to that in a minute), local trunking system notes, copies of lots of E-mail questions that you readers have sent in, things I've downloaded and collected over the years, and oh yeah — some work stuff.

All of this information, without the Web stuff, takes about 10 of the 40 meg card. There's lots of room left over. I found myself *looking for things* I could put in just to fill up the space. It's truly become a portable reference book that I find extremely useful for both work and play.

I mentioned two spreadsheets for our local frequencies. I arrived at that solution as a matter of speed and convenience. On my desktop system, I use a database called FileMaker Pro to keep track of frequency information. Unfortunately, there isn't a version of FileMaker available for Windows CE (at least not yet). So, I had to find a way to get the data into a form that was usable. There is a version of MS Access built into the Windows CE machine, so I figured that would be the logical choice.

Well, it turns out that the Pocket Access, as it's called, is a bit slow and doesn't handle large amounts of data particularly well. It did work, but I found it inconvenient. Then I remembered that FileMaker has the ability to export its information in an HTML table format. Perhaps I could use that, along with Pocket Explorer, to view the information.

I could, but I pretty much had to close all of my other programs to free up enough memory to view these large HTML tables. It worked, but not satisfactorily. I went back to the drawing board. My Word Processor and Spreadsheet were left.

The word processor worked great. It dealt with the large document quite well, but the formatting left a lot to be desired. To really get a clean copy, I was going to have to spend quite a bit of time setting tabs and formatting the data. This is not my idea of a good time.

But the spreadsheet would put that information into columns for me! It was able to handle the large amount of data with no problem. And it has the added capability of searching for information. I choose to output two versions simply for convenience; one sorted in order by agency and the other in order by frequency. That way, I can just open the one that most represents the data I'm interested in. It works like a charm and has come in handy several times.

Finally, I mentioned Web stuff. Windows CE version 2.0 and 3.0 come with a "pocket" version of Internet Explorer and a mail program. If you have access to a phone line, you can plug in directly and browse. While this can be a lot of fun, and has proven very convenient a few times, I've found that for radio info I'd rather have the information off-line. Of course, you can save Web pages directly from Explorer, but you don't get all the graphics and other information that goes with them.

A third party company, Ruksun software <www.ruksun.com>, has come up with a program that allows for downloading of a Website, much like a subscription in the desktop version of Explorer. The information can then be viewed later off-line. I've downloaded four or five sites (about two levels of links deep) related to radio information, and have found them very convenient as reference information, or just to browse. It's the sites that I've been meaning to look at while home, but just don't seem to find the time. Now, I can do it when I have a few minutes whether I'm connected to a phone line or not. Pretty cool stuff.

The bottom line is that Windows CE is not for everyone, but the newest versions of many of the devices make them more attractive than ever. I've even heard predictions that Windows CE devices will be a bigger market than laptops over the next few years. There are certainly a lot of applications I can think of where a complete laptop would be better (I can run FileMaker on a laptop, for instance). But the instant-on and small size of the Windows CE machines make them an attractive choice for many professionals, and using one for radio-related information is now very much a reality. Take a look, and compare features closely, but you may find an application for one of these small wonders in your shack, or professional world, or better still, both.

"This month's 'Product Spotlight' features the new OptoTrakker multi-tone reader from Optoelectronics. . . a truly deluxe external reader. . ."

Scanning The Mail

Ronald Merriott of Lebanon, Indiana, writes in with information we were looking for a few months back! He says "I have some information on Unimetrics Reporter and JIL radios." Ronald provided the address of Howard W. Sams & Co., 2647 Waterfront Parkway East Drive, Indianapolis, IN 46214-2041 and by phone at 800-428-7267. Sams has manuals on these and many other older scanners and communications receivers. We also had several people come forward with JIL manuals and were able to get the information we needed to Klaus and Richard from some months back (oh, the joy of magazine lead times). Thanks to all who responded!

What's On Your Mind?

We're always glad to hear from you about scanner-related questions or topics. You can write me at Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126 or via E-mail at <armadillo1@aol.com>. Don't forget to join us Thursday nights on AOL for the ScanScene conference (Keyword SCAN and follow the links for conferences and chat). Until next month, good listening! ■

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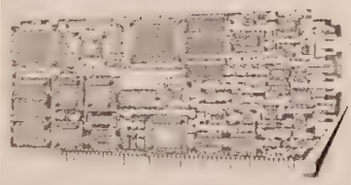

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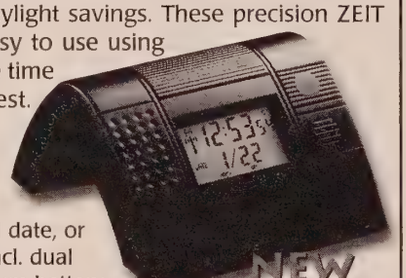

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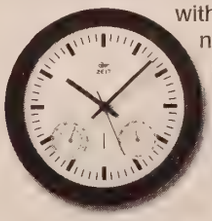

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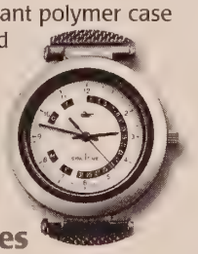

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CIRCLE 60 ON READER SERVICE CARD

The Rise And Fall Of WGI, Boston's Pioneer Station

Well Ahead Of It's Time, This Station Set The Stage For Radio's Future . . .

By Donna Halper

Harold Power, Eddie Dunham, Ken Thompson, Howard Tyzzer, Eunice Randall — they are all gone now, and even in Boston, few people today have heard of them; even fewer know what they did. Things should have been different, of course. They should have become famous. Their radio station, 1XE/WGI had so many "firsts," and despite a small budget and a staff of volunteers, they achieved more than stations run by companies twice their size.

Countless performers got started in those not-very-fancy studios; thousands of loyal listeners tuned in faithfully, even when the signal was not the best. But in the end, the station's founders and the innovators who worked there were forgotten, though they had helped to create modern broadcasting.

Today, most radio history text books don't even mention them, as if to say that what they did wasn't very important. But the more research I have done on the people and accomplishments of 1XE/WGI, the more impressed with them I have become. After reading their story, I hope you will agree that for too many years, they have been denied the credit they deserve.

Harold "Jimmy" Power knew he wanted to be involved with radio from the time he was 10 years old and built his first ham set at his home in Everett, Massachusetts. He was one of a growing number of young men (and a few young women) who were fascinated by the possibilities of the wireless.

Birth Of 1XE

After high school, he attended Tufts College in nearby Medford, where he studied engineering. (In those days, the area where Tufts was located was known as Medford Hillside, about five miles from Boston). Given his love for ham radio, it is no surprise that Power was one of the founders of the Tufts Wireless Society (first calls were TWA, then 1JJ). In 1914, when he and several of his friends graduated, they were determined to continue with radio experimentation. For this to happen, they needed a station of their own, where they could test new equipment and work on improvements in reception. So 1XE was born, with studios and towers on the Tufts campus. Several of their former professors helped them to secure the site, and initially, everyone at the college was very supportive of the new venture. Harold Power was even invited to join the faculty and teach some courses, as Tufts developed curriculum in broadcast engineering.

A rare look at the outside of what the WGI building looked like. This was the photo they used on all their station publicity.

". . . they achieved more than stations run by companies twice their size."

The parent company of 1XE, known as AMRAD — the American Radio and Research Company, was officially incorporated on June 5, 1915. Like most small companies of that time, AMRAD would build receivers and other equipment for the ham radio market. But Harold Power saw radio as much more than sending Morse code transmissions to friends. In late February of 1916, he began broadcasting music concerts to the ships at sea, playing phonograph records and doing the announcing; this innovation got him written up in the Tufts College newspaper, and by late March, his broadcasts were reported in the Boston Globe, under the headline "Music Sent By The Wireless; Professor Power Demonstrated His Marvel to J.P. Morgan at Sea." J.P.

Eunice Randall helping to "man" the AMRAD booth at a New York radio show in March, 1922. AMRAD maintained a presence at most of the northeast radio shows and exhibits until around 1924.

"Jack" Morgan was the son of the famous banker and financier J. Pierpont Morgan, and he now ran his late father's many business enterprises. Power had been a wireless operator on Morgan's yacht, during which time, the story goes, Power had predicted that radio would be the next big thing, encouraging Morgan to invest in it. So it was fortuitous for Power that Jack Morgan was among his listeners at sea — here was concrete proof that the wireless was not just for sending Morse code or receiving the weather reports. Power was obviously aware that if AMRAD was to succeed, he would need friends like Morgan, but more will be said about that later. (Power's phonograph concerts also served another purpose, giving him some much needed positive publicity; the last time he had been written about was a few months earlier, in September of 1915 when, during a storm, the new 1XE tower fell and nearly landed on a passing train).

So Harold J. Power and his amazing music concerts continued, and 1XE began to broadcast more often in 1916–17, although the schedule in those earliest days was always unpredictable. AMRAD was by now involved in doing work for the Signal Corps, and 1XE often had to rely on Tufts engineering students to broadcast. For obvious reasons, students were not always available to work at the station (although cutting classes to go on the air at 1XE did occur sometimes, and would later cause tension between Tufts and AMRAD). Whenever they could, the students pitched in, joining AMRAD personnel to keep 1XE up and running. No one was being paid for working at the station, but since every operator of 1XE (both students and AMRAD staff) was also a licensed amateur, undoubtedly they all regarded the opportunity to be on the cutting edge of new technology as payment enough.

World War I And Broadcasting

America's entry into World War I caused an interruption of all amateur and experimental broadcasts. Although 1XE had permission to remain on the air longer than some of the other stations because AMRAD was building and testing equipment for the military, the station had to suspend its broadcasts by late July of 1918. Once the war ended, the government slowly permitted amateur and experimental broadcasts to resume. The official date was April 15, 1919 — but 1XE was already back on the air several months earlier. When President Wilson arrived in Massachusetts by ship, 1XE broadcast greetings from various dignitaries and AMRAD staff on February 23, 1919, and the Boston newspapers took note of AMRAD's presence.

As with many stations in the late teens, 1XE still had Morse code transmission, code practice, even some point-to-point messages to friends. But there were also the beginnings of what would seem like normal programming to us — weather, sports scores, and phonograph records played by announcers. The on-air staff continued to be some Tufts engineering students, along with AMRAD personnel. If you had even a little talent, you were expected to offer it — several of AMRAD's engineers could play piano, so they ended up accompanying guest vocalists. Eunice Randall (whom you read about in the January issue of *Popular Communications)* recalled how she and the other engineers and draftsmen would work in the AMRAD factory all day and then do engineering or announcing for several hours at night on 1XE. One night, a guest did not show up, so she and another engineer sang duets, and then she played a few records. If you lacked any musical talent, you repaired equipment or you announced. Many AMRAD employees put on the headphones and took their turn talking to the "invisible audience."

In interviews and letters from former AMRAD employees, there was no feeling of being exploited. In fact, looking back on it, everyone felt broadcasting was fun — except when there were major equipment problems that suddenly took the station off the air. When that occurred, the engineer on duty — or sometimes the announcer — was expected to fix whatever was wrong as quickly as possible. I have seen pictures of the 1XE studios, and by our standards, they were quite primitive, with various pieces of equipment that looked as if they had been thrown together at the last minute (which perhaps they had been). But in fairness to AMRAD, I have also seen pictures of numerous other early studios, and none of them looked aesthetically pleasing. Most had dangling wires, signs that read "danger" (which must have made performers feel a bit uneasy), and very crowded working conditions. Comfortable, spacious studios would come much later.

There is evidence that by late 1919, 1XE was broadcasting several times a week, as were a few other soon to be well-known stations in Pittsburgh, Detroit, and Montreal. The average person probably did not know that there were sports scores and phonograph concerts by wireless, however. Few newspapers mentioned radio, and a "radio page" or even a "radio column" was seldom seen — most print journalists saw radio as competition, and they tended to ignore it. The small, but devoted, audience who did listen to these fledgling broadcasts was usually involved with ham radio or with a college; radio was certainly not a mass appeal activity yet. But this was about to change, and 1XE would help to change it.

By 1920, Harold Power preferred to be called "H.J," and he was in charge of a

A rare photo of Big Brother Bob Emery, taken in 1924, before he left WGI. Note the old carbon mikes.

company that was expanding — a new and larger building was completed in the summer of that year, and things appeared to be going well. Although AMRAD did not generate as much volume as Westinghouse or RCA, the company was able to afford large advertisements in such magazines as *Radio Amateur News* and *QST*. Amateur radio equipment was still the vast majority of what AMRAD produced, but Power's belief in the future of commercial radio (along with the hard work of the 1XE staff) led to further expansion of the hours when 1XE was on the air. Also, the programming was slowly evolving. There was less Morse code, and more announced programs (or "programmes," as they were spelled back then). In her letters, Eunice Randall recalled doing her first bedtime stories for the kids in late 1919/early 1920, and several other 1XE staffers recalled that a wide range of local musicians could now be heard, augmenting the limited musical skills of the AMRAD personnel. While the broadcast schedule was still sporadic, the station was doing much more than what was typical for amateur or experimental stations of that time. And 1XE was only getting started.

KDKA Was Not Alone!

Till the day he died, Eddie Dunham became enraged whenever he read that KDKA was the first to broadcast professionally, on November 2, 1920. "Uncle Eddie" (when not doing serious announcing or accompanying guests on the piano, he shared the role of bedtime story reader with Eunice Randall) spent a large portion of his post-AMRAD life defending the reputation of little 1XE, and trying to combat one of broadcasting's most durable myths — that no other station existed before KDKA. WWJ in Detroit and several other stations also fought this battle, yet to this day, many books insist that KDKA was first. Since I wasn't there (while Eddie, Eunice, "H.J.," and others were), I can never settle this argument. But suffice it to say that there *is* enough evidence to show that KDKA was not alone. (In an interview he did in August of 1964, Eddie insisted he had a letter from Frank Conrad, written in 1923, wherein Conrad admitted that yes, 1XE had been on the air several months before KDKA; alas, to this day, nobody has seen that letter, but many of us wish we could!) No matter whom you believe, and no matter who was really first, the fact remains that KDKA was much better equipped to make its achievements known. Westinghouse, the parent company, had a massive publicity department, and in radio's early days, this was a necessity, since unless you found a way to get attention, newspapers were not going to help you out. Of course, a few newspapers would soon own stations, but in radio's formative years, getting the print media to write about the new competition often proved challenging. Westinghouse was masterful at getting its name into print, via buying advertising if necessary, but also by sending out numerous press releases on a regular basis, along with pictures and other promotional material. Very impressive promotional packets were sent all over the country, especially to smaller markets that did not yet have a radio station, enabling the local newspaper to seem very up-to-date by writing about an innovative station that was no threat because it was hundreds of miles away. If promotional kits didn't generate enough publicity, key Westinghouse personnel were sent on lecture tours to visit various universities, where they would speak about the wonders of broadcasting (of course, a large part of their speech just happened to be about KDKA, and later about the other Westinghouse stations).

". . . most print journalists saw radio as competition, and they tended to ignore it."

Knowing what I know now about AMRAD's financial situation, I strongly doubt that they ever had the money to compete with Westinghouse. Further, the job of publicist at AMRAD (like every other 1XE-related job) was a rotating volunteer job — everyone seemed to take a turn doing it, some with better results than others. Westinghouse could offer famous engineers to be interviewed; AMRAD did the best it could to get its people out there, but outside of New England, they lacked the cachet or the "big name."

AMRAD Gets Creative

Sometimes, AMRAD could be clever. In 1921, the voice of Eunice Randall was recorded on Dictaphone equipment and played through a speaker from the AMRAD booth at a radio convention in Chicago. (This may not sound so clever to us today, but consider that in 1921, audiotape had not been invented, most radio was done live, and finding a way to record one of your best-known announcers would probably have attracted some attention.)

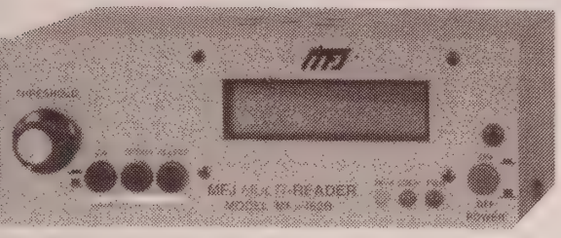
More often than not, 1XE had to find creative ways to get things done at minimal expense; AMRAD was a David amongst the Goliaths who were beginning to put radio stations on the air. While 1XE gradually built a following in New England, outside the local area, KDKA had no trouble defining itself as the first truly "professional" station; 1XE was perceived as something between a college station and an experimental station, even though much of what it broadcast was exactly what KDKA did. Now and then in 1920–21, 1XE would get a mention in a magazine like *Radio Amateur News* or *Wireless Age*, but it never was able to generate as much media attention as the Westinghouse stations.

1XE did gain an important ally in Boston — a writer at the only newspaper with a regular radio column. In early 1921, the *Boston Traveler* began writing about radio three times a week (the Boston Globe also had a radio column by then, but it only ran several times a month, and mostly covered the amateurs and their club activities). *The Traveler's* radio columnist was Guy Entwistle, a devoted ham (1AL, and the New England Manager of the American Radio Relay League). Entwistle was also a Tufts graduate and a veteran of 1JJ. He knew many of the 1XE staff, and from the first week that his column ran, he faithfully chroni-

(Continued on page 74)

Tap into secret Shortwave Signals

Turn mysterious signals into exciting text messages with this new MFJ MultiReader™



MFJ-462B **$179.95**

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Then *watch* mysterious chrips, whistles and buzzing sounds of RTTY, ASCII, CW and AMTOR(FEC) turn into exciting text messages as they scroll across your easy-to-read LCD display.

You'll *read* interesting commerical, military, diplomatic, weather, aeronautical, maritime and amateur traffic . . . traffic your friends can't read -- unless they have a decoder.

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Listen to maritime users, diplomats and amateurs send and receive error free messages using various forms of TOR (Telex-Over-Radio).

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MFJ's exclusive *TelePrinterPort*™ lets you monitor any station 24 hours a day by printing their transmissions on your Epson compatible printer.

Printer cable, **MFJ-5412**, $9.95.

MFJ *MessageSaver*™

You can save several pages of text in 8K of memory for re-reading or later review .

High Performance Modem

MFJ's high performance *phaselock loop* modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference -- greatly improves copy on CW and other modes.

Easy to use, tune and read

It's easy to use -- just push a button to select modes and features from a menu.

It's easy to tune -- a precision tuning indicator makes tuning your receiver easy for best copy.

It's easy to read -- the 2 line 16 character LCD display with contrast adjustment is mounted on a sloped front panel for easy reading.

Copies most standard shifts and speeds. Has *MFJ AutoTrak*™ Morse code speed tracking.

Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, $12.95. 5¼x2½x5¼ inches.

No Matter What Warranty

You get MFJ's famous one year *No Matter What*™ *unconditional* warranty. That means we will repair or replace your *MFJ MultiReader*™ (at our option) *no matter what* for a full year.

Try it for 30 Days

Order an *MFJ-462B MultiReader*™ *from* MFJ and try it in your own setup -- compare it to any other product on the market regardless of price.

Then if you're not completely satisfied, simply return it within 30 days for a prompt and courteous refund (less shipping).

Order today and try it -- you'll be glad you did.

Super Active Antenna

"World Radio TV Handbook" says MFJ-1024 is a "first rate easy-to-operate active antenna . . . quiet . . . excellent dynamic range . . . good gain . . . low noise . . . broad frequency coverage."

Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz to 30 MHz.

Receives strong, clear signals from all over the world. 20dB attenuator, gain control, ON LED. Switch two receivers and aux. or active antenna. 6x3x5 in. remote has 54 inch whip, 50 ft. coax. 3x2x4 in. 12 VDC or 110 VAC with MFJ-1312, $12.95.

$129.95 MFJ-1024

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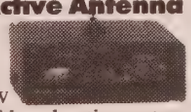
MFJ-1020B **$79.95**

Rival outside long wires with this *tuned* indoor active antenna. *"World Radio TV Handbook"* says MFJ-1020 is a "fine value . . . fair price . . . best offering to date . . . performs very well indeed."

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as preselector with external antenna. Covers 0.3-30 MHz. Has Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip. 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312, $12.95.

Compact Active Antenna



MFJ-1022 **$39.95**

Plug this new *compact* MFJ all band active antenna into your general coverage receiver and you'll hear strong clear signals from all over the world from 300 KHz to 200 MHz -- including low, medium, shortwave and VHF bands.

Also improves scanner radio reception on VHF high and low bands.

Detachable 20 in. telescoping antenna. 9 volt battery or 110 VAC with MFJ-1312B, $12.95. 3⅛x1¼x4 in.

Eliminate power line noise!

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New! ***Completely*** eliminate power line noise, lightning crashes and interference *before they get into your receiver!* Works on all modes -- SSB, AM, CW, FM, data -- and on all shortwave bands. Plugs between main external antenna and receiver. Built-in active antenna picks up power line noise and cancels undesirable noise from main antenna. Also makes excellent active antenna.

MFJ Antenna Matcher

MFJ-959B **$99.95**

Matches your antenna to your receiver so you get maximum signal and minimum loss.

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Pushbuttons let you select 2 antennas and 2 receivers. Cover 1.6-30 MHz. 9x2x6 inches. Use 9-18 VDC or 110 VAC with MFJ-1312, $12.95.

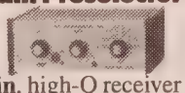
Dual Tunable Audio Filter

MFJ-752C **$99.95**

Two separately tunable filters let you peak desired signals and notch out interference at the same time. You can peak, notch, low or high pass signals to eliminate heterodynes and interference. Plugs between radio and speaker or phones. 10x2x6 in.

High-Gain Preselector

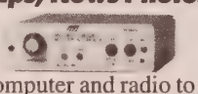
MFJ-1045C **$69.95**



High-gain, high-Q receiver preselector covers 1.8-54 MHz. Boost weak signals 10 times with low noise dual gate MOSFET. Reject out-of-band signals and images with high-Q tuned circuits. Pushbuttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18VDC or 110 VAC with MFJ-1312, $12.95.

Receive *CW, RTTY, ASCII, Weather Maps, News Photos*

MFJ-1214PC **$149.95**



Use your computer and radio to receive and display *brilliant full color* FAX news photos and incredible WeFAX weather maps. Also RTTY, ASCII and Morse code.

Animate weather maps. Display 10 global pictures simultaneously. Zoom any part of picture or map. Frequency manager lists over 900 FAX stations. Automatic picture saver.

Includes interface, easy-to-use menu driven software, cables, power supply, comprehensive manual and *Jump-Start*™ guide. Requires 286 or better computer with VGA monitor.

High-Q Passive Preselector

MFJ-956 **$39.95**

The MFJ-956 is a *high-Q* passive LC preselector that lets you boost your favorite stations while rejecting images, intermod and other phantom signals. Covers 1.5-30 MHz. Has preselector bypass and receiver grounded pos. 2x3x4 inches.

Super Passive Preselector

MFJ-1046 **$99.95**

New! **Improves** any receiver! Suppresses strong out-of-band signals that cause intermod, blocking, cross modulation and phantom signals. Unique Hi-Q *series tuned* circuit adds super sharp front-end selectivity with excellent stopband attenuation and very low passband loss. Air variable capacitor with vernier. 1.6-33 MHz.

Easy-Up Antennas Book

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MFJ-38 **$16.95**

MFJ 12/24 Hour LCD Clocks

MFJ-107B **$9.95**

MFJ-108B **$19.95** MFJ-105C **$19.95**

MFJ-108B, dual clock displays 24 UTC and 12 hour local time *simultaneously*. **MFJ-107B**, single clock shows you 24 hour UTC time. *3 star rated* by *Passport to World Band Radio*!

MFJ-105C, accurate 24 hour UTC quartz *wall clock* with large 10 inch face.

MFJ Antenna Switches

MFJ-1704 **$59.95**

MFJ-1702C **$21.95**

MFJ-1704 heavy duty antenna switch lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection device. Good to 500 MHz. 60 dB isolation at 30 MHz.

MFJ-1702C for 2 antennas.

World Band Radio Kit

MFJ-8100K **$59.95***kit*
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CIRCLE 120 ON READER SERVICE CARD

Pop'Comm's World Band Tuning Tips

June 1999

This listing is designed to help you hear more shortwave broadcasting stations. The list includes a variety of stations, including international broadcasters beaming programs to North America, others to other parts of the world, as well as local and regional shortwave stations. Many of the transmissions listed here are not in English. Your ability to receive these stations will depend on time of day, time of year, your geographic location, highly variable propagation conditions, and the receiving equipment used.

AA, FF, SS, GG, etc. are abbreviations for languages (Arabic, French, Spanish, German). Times given are in UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST.

UTC	Freq.	Station/Country	Notes
0000	5960	Radio Canada Int'l.	
0000	6055	Radio Exterior de Espana, Spain	
0000	11620	All India Radio	
0020	11905	Sri Lanka Broadcasting Corp.	vern.
0030	4472	Radio Movima, Bolivia	SS
0030	6025	Radio Amanecer, Dominican Republic	SS
0030	6726	Radio Satelite, Peru	SS
0030	9022	Voice of the Islamic Rep. of Iran	
0030	13695	Radio Thailand	
0100	3300	Radio Cultural, Guatemala	
0100	4955	Radio Nacional, Colombia	SS
0100	5030	Adventist World Radio, Costa Rica	SS
0100	5077	Caracol Colombia	SS
0100	5770	Radio Miskut, Nicaragua	SS
0100	5905	Radio Ukraine Int'l.	
0100	6200	Radio Prague, Czech Rep.	
0100	7105	Radio Tashkent, Uzbekistan	
0100	7450	Voice of Greece	Greek/EE
0100	9735	Radio Nacional de Paraguay	SS
0100	9965	Voice of Russia via Armenia	SS
0100	11690	Voz Cristiana, Chile	SS
0130	3210	Radio Exterior de Espana, Spain, via Costa Rica	SS
0130	3250	Radio Luz y Vida, Honduras	SS
0130	7205	Radio Ukraine Int'l.	
0200	3250	La Voz del Napo, Ecuador	SS
0200	4825	Radio Cancao Nova, Brazil	PP
0200	4980	Ecos del Torbes, Venezuela	SS
0200	5025	Radio Rebelde, Cuba	SS
0200	6155	Radio Canada Int'l.	
0200	6170	Radio Cultura, Brazil	PP
0200	7495	Reshet Bet, Israel	HH
0200	9475	Radio Cairo, Egypt	
0200	9885	Swiss Radio Int'l.	
0200	11705	Radio Havana, Cuba	
0200	11710	RAE, Argentina	SS/EE
0200	11765	RAI, Italy	II
0200	11780	Radio Nacional Amazonia, Brazil	PP
0200	11800	RAI, Italy	II
0200	17675	Radio New Zealand Int'l.	
0230	3340	Radio Altura, Peru	SS
0230	5950	Voice of Vietnam, via Russia	
0230	6020	Radio Budapest, Hungary	
0230	6115	Radio Tirana, Albania	
0230	6120	Radio Vilnius, Lithuania via Germany	
0230	9495	Radio Sweden	
0230	9605	Vatican Radio	FF
0300	3306	Zimbabwe Broadcasting Corp.	EE/vern.
0300	4819	La Voz Evangelica, Honduras	SS/EE
0300	4830	Radio Tachira, Venezuela	SS
0300	7110	Radio Free Iraq, USA, via Greece	AA
0300	7345	Radio Prague, Czech Rep.	
0300	7375	Radio Bulgaria	
0300	9525	Channel Africa, South Africa	
0300	9715	Radio Portugal Int'l.	PP
0300	11815	Radio Brazil Central	PP
0330	4885	Radio Clube do Para, Brazil	PP
0330	6940	Radio Fana, Ethiopia	vern.
0330	9820	Radio Havana, Cuba	
0330	9895	Merlin Network One, England	
0330	15170	Radio Tahiti	FF
0345	11620	Radio Tajikistan	
0400	3270	Namibia Broadcasting Corp.	
0400	4915	Radio Cora, Peru	SS
0400	4985	Radio Brazil Central	PP
0400	5990	Radio Romania Int'l.	
0400	6010	Voice of Turkey	
0400	6115	Radio Union, Peru	SS
0400	6165	Radio Netherlands via Neth. Antilles	
0400	6265	Radio Zambia	EE/vern.
0400	9505	Radio Austria Int'l., via Canada	
0400	9560	Voice of Ethiopia	vern.
0400	11940	Radio Romania Int'l.	
0430	4919	Radio Quito, Ecuador	SS
0500	4770	Radio Nigeria	
0500	7255	Voice of Nigeria	
0500	7465	Kol Israel	
0500	9560	China Radio Int'l., via Canada	
0500	11585	Kol Israel	HH
0530	4815	Radio Burkina, Burkina Faso	FF
0530	4850	Cameroon Radio TV	FF/EE

UTC	Freq.	Station/Country	Notes
0530	4870	ORTB, Benin	FF
0530	4996	Radio Andina, Peru	SS
0600	4775	Radio Liberal, Brazil	PP
0600	4845	Radio Mauritanie, Mauritania	FF
0600	4915	Ghana Broadcasting Corp.	EE
0600	5047	Radio Lome, Togo	FF
0600	5100	Radio Liberia	
0600	6185	Radio Educacion, Mexico	SS/EE
0630	3985	Italian Radio Relay Service	SSB
0630	5011	Radio Cristal, Dominican Republic	SS
0630	9375	Voice of Greece	Greek
0630	9715	Radio Oman	AA
0700	5020	Solomon Islands Broadcasting Corp.	
0700	5054	RFO, French Guiana	FF
0730	3290	Voice of Guyana, Guyana	
0800	6010	Radio Mil, Mexico	SS
0800	6150	Radio Record, Brazil	PP
0830	4960	Radio Vanuatu, Vanuatu	FF/EE/vern.
0830	9940	Radio Vlaanderen, Belgium	
0930	4950	Radio Baha'l	SS
0930	11635	Far East Broadcasting Corp., Philippines	
1000	4970	Radio Rumbos, Venezuela	SS
1030	9700	Radio New Zealand Int'l.	
1100	3313	Radio Manus, Papua New Guinea	
1100	3360	La Voz de Nahuala, Guatemala	SS
1100	4770	Centinela del Sur, Ecuador	SS
1100	4800	XERTA, Mexico	SS/EE
1100	4835	Radio Tezulutlan, Guatemala	SS
1100	4890	NBC, Papua New Guinea	
1100	5055	Faro del Caribe, Costa Rica	SS
1100	5850	Sunrise Radio, via Germany	
1100	6195	BBC via Antigua	
1100	7295	Radio TV Malaysia	
1100	9325	Radio Tampa, Japan	JJ
1100	9915	Merlin Network One, England	
1130	3220	HCJB, Ecuador	SS/QQ
1130	4754	Radio Republik Indonesia, Ujung Pandang	II
1130	5965	BBC via Canada	
1130	9525	Voice of Indonesia	II
1200	3325	Radio Maya, Guatemala	vern.
1200	5975	Radio Tashkent, Uzbekistan	
1200	6050	HCJB, Ecuador	SS
1200	9345	Radio Pyongyang, North Korea	KK
1200	15700	Radio Bulgaria	
1230	6015	Radio Singapore	
1230	9165	Radio Dada Gorgud, Azerbaijan	vern.
1230	9810	Radio Thailand	
1230	12085	Voice of Mongolia	
1230	21510	Radio Ukraine Int'l.	
1300	6020	Radio Australia	
1300	7365	KNLS, Alaska	
1300	9515	BBC, England, via Canada	
1300	12020	Voice of Vietnam	
1300	17745	Radio Romania Int'l.	
1300	21530	Channel Africa, South Africa	
1330	9580	Radio Australia	
1330	17660	Radio Finland Int'l.	
1330	17715	Radio Canada Int'l.	
1330	17730	Deutsche Welle/Voice of Germany	GG
1330	17815	Voice of Turkey	
1330	17860	Radio Japan/NHK World	JJ
1350	13765	Vatican Radio	
1350	15500	Vatican Radio	
1400	11595	Radiophonikos Stathmos Makedonias, Greece	Greek
1400	15465	Radio Pakistan	
1400	17680	Voz Cristiana, Chile	SS
1430	11930	Radio Marti, USA	SS
1430	13740	Radio Sweden	
1430	17870	Radio Sweden	
1500	9505	Radio Japan/NHK World	
1500	11705	Radio Japan via Canada	JJ
1500	15400	Radio Finland Int'l.	FF
1500	17630	Merlin Network One, England	
1530	9495	KFBS, Saipan, No. Marianas	CC
1530	15160	Broadcasting Svc. of Kingdom of Saudi Arabia	AA/EE
1530	15640	Kol Israel	
1600	9705	Radio Mexico Int'l.	
1600	11615	Radio France Int'l.	FF
1600	11690	Radio Jordan	
1600	11705	Far East Broadcasting Assn., Seychelles	vern.
1600	11750	Qatar Broadcasting Service	AA
1600	15160	Radio Algiers Int'l., Algeria	EE/AA
1600	15435	Radio Jamahiriya, Libya	AA
1630	9770	UAE Radio	AA
1630	15395	UAE Radio, Dubai	
1700	9200	Radio Omdurman, Sudan	AA
1700	9580	Africa No. One, Gabon	FF
1700	15715	RTBF, Belgium, via Germany	FF
1700	18910	Radio Norway Int'l.	NN
1730	12130	Adventist World Radio, via South Africa	
1800	9780	Republic of Yemen Radio	AA/EE
1800	15345	RTV Morocaine, Morocco	AA
1800	17870	Channel Africa, South Africa	
1830	11570	Radio Pakistan	vern.
1830	11734	Radio Tanzania — Zanzibar	AA
1830	11990	Radio Kuwait	AA/EE
1830	15150	Voice of Indonesia	
1900	7535	Icelandic State Broadcasting Service	Icelandic (SSB)
1900	15120	Voice of Nigeria	EE/others
1900	15485	Voice of Greece	Greek
1900	17820	Radio Canada Int'l.	
1930	9510	Trans World Radio, Swaziland	EE/vern.
1930	11635	Radio Denmark, via Norway	DD
1930	15115	HCJB, Ecuador	
2000	11910	Swiss Radio Int'l., via Germany	
2030	11715	Radio Algiers Int'l., Algeria	
2130	7105	Radio Minsk, Belarus	
2130	12085	Radio Damascus, Syria	
2200	9990	Radio Cairo, Egypt	
2200	11815	Voice of Africa/Radio Jamahiriya, Libya	
2200	15345	Radio Nacional, Argentina	SS
2230	9985	Radio Taipei Int'l., Taiwan, via USA	
2300	7300	Voice of Turkey	TT
2300	7520	Radio Moldova Int'l.	
2300	9900	Radio Minurca, Central African Republic	
2300	11335	Radio Pyongyang, North Korea	
2300	15130	Radio Pyongyang, North Korea	
2330	5975	BBC, via Antigua	
2330	11975	China Radio Int'l., via Mali	CC

■

Product Parade

BY HAROLD ORT
AND R.L. SLATTERY

REVIEW OF NEW, INTERESTING AND USEFUL PRODUCTS

Midland Announces New Professional CB Radio With ESP™ 2 Noise Killer Circuit

One of the biggest complaints from CBers is excess noise that interferes with communication, effectively shortening range. Midland's new model 77-250CXL with ESP™ 2 patent-pending technology, provides significant — according to Midland 95 percent — noise reduction, even " . . . when communicating with other radios without ESP™ 2."

According to Midland, ESP™ 2 "senses the strength of the signal being processed, and adjusts accordingly. If receiving a strong, clear signal, ESP™ 2 allows the signal through with little or no noise reduction. As the signal gets weaker, or more noise is detected, the noise killer circuit adjusts automatically to boost the signal and filter more of the high and low frequencies, allowing middle frequency voices to come through loud and clear."

Midland's new 77-250CXL CB features ESP™ 2 noise reduction technology.

The Midland 77-250CXL includes a new analog meter system, built-in SWR system to monitor antenna performance, and instant Channel 9 and 19. Other features include front panel-adjustable squelch, mic and RF gain, as well as SWR calibration to match the transceiver to the user's antenna.

A unique slide-in mounting system makes it easy to install and remove. The new Midland 77-250CXL carries a suggested retail price of $129.95. For more information, contact Midland Consumer Radio, Inc., P.O. Box 33865, Kansas City, MO 64120-3865 or phone 816-241-8500 or you can E-mail inquiries to <midlnd-cb@tfs.net> or visit the Midland Website at <http://www.midlandradio.com>.

Marvel Communications Company New AM/FM And Weatherband Antenna

Marvel Communications, Inc., maker of Everhardt "Tiger" antenna products, has released a new antenna for receiving AM/FM and Weatherband called "The Loop." Designed for use in vehicles with fiberglass or rubber roofs, this antenna mounts under the headliner for a "no

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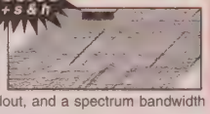

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• Plus, with the listed radios below, you can have a complete computerized control of receive frequency, direct frequency readout, and a spectrum bandwidth (variable from 500KHz to 10 MHz).
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"The Standard Against Which All Future Decoders Will Be Compared"
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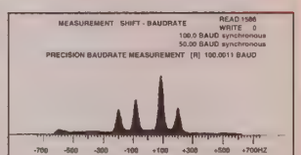
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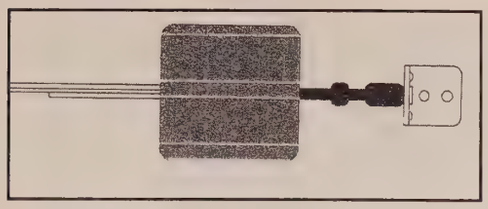


Marvel's new Loop antenna for AM/FM and Weatherband reception.

holes" installation. This internally-mounted antenna assures no breakage. Suggested retail is $29 from Marvel Communications Company, Inc., 6000-D Old Hemphill Road, Fort Worth, TX 76134. Phone Marvel at 800-735-0176 or FAX 817-293-4441. You can also E-mail them at <tigerever@aol.com>.

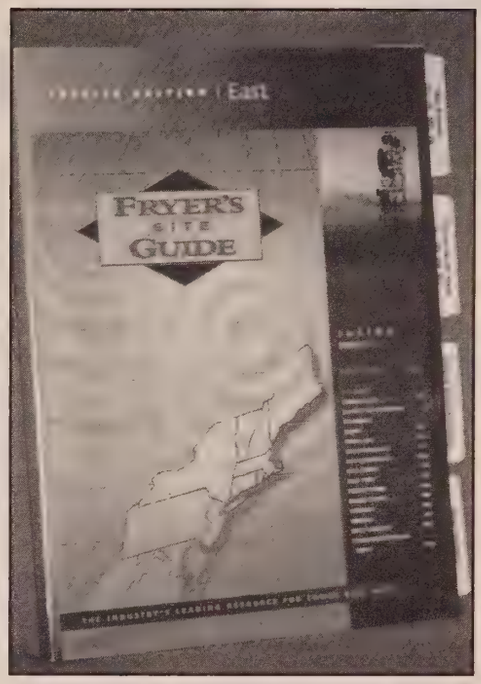
Guide To Tower Sites

Owners of communications and broadcast towers over 200 feet high in the U.S. are required by the FCC to register them. At this time, more than 45,000 have been registered nationally, although some tower owners have still not complied. *Fryer's Site Guide* is the leading guide to U.S. tower sites, a resource published primarily for communications interests.

This data-rich book contains a wealth of information that should also be of use and interest to scanner owners and hams. Learn where repeaters you're monitoring are located. Find the best hilltop locations to take your mobile or handheld scanner or ham radio. Easily determine the best locations for ham, GMRS, business band, and other repeaters.

Individual tower sites are shown with useful relevant data, including city, exact address or location, latitude/longitude, height of tower above ground, height above sea level, name of site owner/manager, and phone number. Also included is the type of tower, such as rooftop, AM radio, cell site, water tower, etc.

This is a big professional book. It even contains fascinating information and ads from site owners about their sites. *Fryer's Site Guide* is published in four regional edition (East, West, Southeast, and Midwest/Texas) covering the 48 contiguous states. When you order, you'll get the current edition for your region (unless you specify otherwise). Each edition is $95 plus $5 s/h ($7 to Canada). New York State residents please include $8.25 sales tax. It's from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725.



Fryer's Site Guide *is a regional directory of exhaustive tower site information.*

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The Listening Post

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Sierra Leone Broadcasting Service Back On The Air, And Italy Boosts SW Broadcasts

The Sierra Leone Broadcasting Service has returned to the air after suffering damage during the civil war, which has been battering this country over the past several months. In fact, two members of the SLBS staff were killed while the rebels had control of the capital, Freetown. SLBS isn't the easiest catch for North American listeners, but they can be "had." They're on **3316** with 10 kW, nominally operating from 1700 to 0000 and 0600 to 0830. Best bet is at their 0600 sign-on. Programming is in English.

Here's the current schedule for RTBF, the broadcasting organization representing French-speaking Belgians, which returned to shortwave after an absence of several years. They're on from 0400–0600 (Mon.–Fri.) on **9490**; 0530 to 0600 (Sat.–Sun.) on 9490; 0600–0915 (Sun.) on **17650**; 0600–0810 (Mon.–Sat.) on **17650**; 0600–1100 (Sat.) on 17650; 1100–1315 on **21565** (Mon.–-Fri.); 1100–1215 (Sat) on 21565; 1200–1215 (Sun.) on 21565; 1600–1810 (Sun.–Fri.) on 13820 and 1700–1810 (Sat.) on **13820.** All programs are in French and come from Germany's Julich transmitter site, not direct from Belgium. Reception reports go to: RTBF, Relations International, 1044 Brussels, Belgium.

Radio UNAM (Autonomous University of Mexico) has resumed activity on its **9600** frequency after a considerable absence. The Spanish-speaking station features cultural programming, including a lot of classical music, apparently relaying its local broadcasts. It is scheduled from 1300 on through 0700, running 1 kW at best.

Listening Post reporter Mike Miller of Washington has noted Caracol **Colombia** on **5077** missing a few times, but currently back on the air. Radio Norway International has discontinued issuing QSLs due to budgetary restraints. Thanks, guys. We love you, too!

One of the latest in the never-ending Peruvian parade is **Radio Manantial in Jaen, Cajamarca,** broadcasting a religious format in Spanish. It's on **5773.7** around 1000 (and probably hearable in our early evenings as well).

Jeff Muska got this card from China Radio International, confirming reception of its Mali relay.

Italy's RAI, unlike too many others, is *expanding* its commitment to shortwave. Fausto Spegni, Chief Director for Information at RAI International writes in the February RAI program booklet that the station is working on technical improvements and planning greater utilization of relays. Italian language broadcasts to Australia are being doubled and the five-hour-long "Notturono Italiano" broadcast will be revised and improved. The English used in the article leaves some of the specifics in confusion but his closing line is well put; " . . . a notable effort has been devoted to shortwave, to that old but ever new listening system, whose ability is to make radio fascinating and the world small." Amen to that!

Reader Ed Lindley in Maine notes that he's received a book from REE, Spain which, Ed says, is about the size of *Passport to World Band Radio*. It's all in Spanish and includes charts and plans for antennas.

Ed also notes that he's been chosen as a monitor for Radio Taipei International, and that RTI's compliment of monitors is now complete. WYFR, on the other hand, is still seeking additional people to keep an ear on their signal. And Ed wonders about the lack of mail coming from Radio Havana Cuba. He hasn't had anything from them in over a year and wonders if others are in the same boat. We'd guess maybe the financial crunch there has put the kibosh on outgoing mail from RHC.

June Book Winner

As you probably know by now we are awarding a shortwave book to a different reporter each month in thanks and appreciation for his or her support. There aren't any specific qualifications — it's a sort of subjective judgment based all or in part on loyalty, longevity, and quality. This month's winner is **Mark Northrup of Gladstone, Missouri** who, if he has missed a month or two over the past several years it is only because the mail was

CRI also sent Jeff this photo of the "Current Affairs Group" at CRI. Yang Lei, Deputy Director of CRI's English language service is seated at the center.

slow! Mark wins a copy of the 1999 *World Radio TV Handbook*, courtesy of **CRB Research Books** — The Radio and Electronics Hobby Bookstore. They have a big catalog which you can order by writing P.O. Box 56, Commack, New York 11725. Their Web site is at <http://www.crbbooks.com>. Congratulations, Mark! And thanks to CRB for participating.

Remember your reception logs are always welcome. Just be sure to list items by country, do a minimum double-space between each (so we can navigate scissors easily) and add your last name and state abbreviation after each item. Other things we can put to good use here are spare QSL cards you don't need returned, station photos, and other materials, including schedules. And how about sending a photograph of you at your listening post? As always, thanks so much for your continued interest and cooperation!

Here are this month's logs. All times are in UTC, which is five hours ahead of EST, i.e.0000 UTC equals 7 p.m. EST, 6 p.m. CST, 5 p.m. MST and 4 p.m. PST. Double capital letters are language abbreviations (FF = French, AA = Arabic, SS = Spanish, etc.). If no language abbreviation is included the broadcast is assumed to have been in English. Note: Several logs had to be scrapped this time because the reporters forgot to include the time heard.

ALASKA — KNLS, **7365** at 0800. Clear ID. (Linonis, PA)

ALBANIA — Radio Tirana, **6220** at 0130 with news of Albania. (Lindley, ME) **7180** at 2015 sign-on to past 2033 with IS, ID, schedule, news, comment. **Better on // 9649.8.** (Alexander, PA)

ALGERIA — Radio Algiers Int'l, **11715** at 2001, fair until RAI, Italy comes on at 2024. Audible again from 2025 to 2047 when RAI is off. (Silvi, OH)

ANGOLA — Radio Nacional, **4950** at 0345 to past 0410 in PP with pops, IDs, time pips at 0400 and talk. Also **11954.76** at 2030 to past 2105 in PP with Afro-pops, time pips at 2100, ID, and PP talk. (Alexander, PA) **11955** from 2030–2045 in PP. (Linonis, PA)

ANTARCTICA — Radio Nacional Arcangel San Gabriel, **15475.8** at 2207 sign-on to 2357 close. SS ballads, mostly continuous SS pops and ballads, many IDs by YL. Off abruptly. (Alexander, PA) 2302 to sudden off at 2357, female IDs. (Silvi, OH) *(These "late" times were during their test phase. Normal sign-off is now 2100, which will make reception more difficult — Editor)*

ANTIGUA — BBC relay on **5975** at 0000, 0501, 0601, 2200, and 2355. (Jeffery, NY)

ARGENTINA — RAE, **11710** at 0100 in SS with SS pops. (Linonis, PA)

ARMENIA — Voice of Armenia, **9965** monitored at 2116 with news and features. (Ziegner, MA) Presumed at 0308 with news in SS. (Jeffery, NY)

AUSTRALIA — Radio Australia, **9500** monitored at 1520 with Bartok. **//9580, 9660.** (Miller, WA) **9580** still audible at 1709 with news analysis. (Barton, AZ) **11880** at 1230 in CC. (Ziegner, MA) **17715** at 2242 with "Music Deli." (Jeffery, NY) **21740** at 2130 with music program and calls from listeners. (Linonis, PA) VNG time station, **8633** with time announcements in slow Morse at 1330 and 1400. (Silvi, OH)

AUSTRIA — Radio Austria Int'l, **13730** at 0831 with news and "Report From Austria." (Foss, AK) 1655. (Moser, IL)

AZERBAIJAN — Radio Azerbaijan, **9165.08** at 0320 to 0402 sign-off. Strong, but distorted signal putting out distorted FMing spurs on 9155 and 9175. Local language. (Alexander, PA)

BELGIUM — Radio Vlaanderen Int'l, **9925** at 0836 with "Brussels Calling" reporting on latest cable TV developments in Belgium. (Foss, AK) **11805** via Julich, Germany at 1900 with program in Dutch. (Provencher, ME)

BOTSWANA — Voice of America relay, **7415** heard at 0357 with "VOA News Now." (Jeffery, NY)

BRAZIL — Radio Mundial, Sao Paulo, **4975** at 1001 with talk in PP. (Hughes, MO) Radio Guaiba, **11785** at 0958 with PP talk, ID jingles, announcements, Brazilian ballads. (Alexander, PA)

BULGARIA — Radio Bulgaria, **7375** at 0252 with folk music, SS announcer. (Foss, AK) 0348 "Radio Bulgaria Calling." **7535** at 2200 with "Events and Developments," news and mailbag. (Lindley, ME)

CANADA — Radio Canada Int'l, **5960** at 2330 with news, interviews. (Lindley, ME) **11945** at 2215 with news. (DiMaria, IL) **15150//17820** at 2000 with sports, weather, and "Spectrum."

Equal time! Some of the English language staff at Radio Taipei International. (Thanks Ed Lindley)

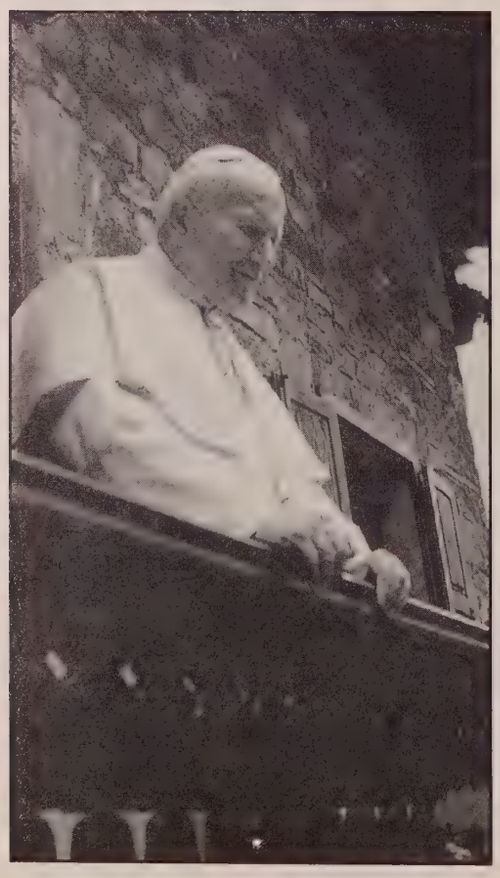
Abbreviations Used in Listening Post

AA	Arabic
BC	Broadcasting
CC	Chinese
EE	English
FF	French
GG	German
ID	Identification
IS	Interval Signal
JJ	Japanese
mx	Music
NA	North America
nx	News
OM	Male
pgm	Program
PP	Portuguese
RR	Russian
rx	Religion/ious
SA	South America/n
SS	Spanish
UTC	Coordinated Universal Time (ex-GMT)
v	Frequency varies
w/	With
WX	Weather
YL	Female
//	Parallel Frequencies

(Linonis, PA) BBC via Sackville, **9515** at 1300 and 1512. (Jeffery, NY)

CHILE — Voz Cristiana, **11690** at 0343 in SS with preaching, ID, contemporary Christian music. (Dybka, TN) 0345. (DiMaria, IL) **15375** at 0009, **17680** at 2227, **21500** at 1737, 1808 on **21550**, all in SS. (Jeffery, NY) **21500** at 2040. (Provencher, ME)

CHINA — Central People's Broadcasting Station, **7504** in CC at 1340. Taiwan service on **9380** in CC at 1355. (Foss, AK) China Radio Int'l, **7780** in RR at 1742, **9570** at 1746 in CC. (Foss, AK)



This Vatican Radio card shows Pope John Paul II.

COLOMBIA — Radio Nacional, **4955** in SS at 0448. (Hughes, MO) Ecos del Atrato, **5019.82** monitored at 0345 in SS with pops, announcements, Caracol promos, commercials, jingles. (Alexander, PA) Caracol Colombia, **5077** at 2203 in SS. Had been off for a while. (Miller, WA)

COSTA RICA — Adventist World Radio/La Voz de la Esperanza, **5030.08** at 1010 in SS with religious drama. IDs at 1030 and 1100. (Alexander, PA) **9725** at 0030 in EE. (Linonis, PA) 0130 with uninterrupted gospel music and evangelical narration. (Provencher, ME) RFPI, **15050** at 0023 with political discussion in EE. (Miller, WA) **21460 SSB** at 1731. (Jeffery, NY)

CROATIA — Croatian Radio, **6130** at 0400 with news. (Hughes, MO) **7305** at 0705 with news, ID. (Alexander, PA)

CUBA — Radio Havana, **6000** at 0329, **9820** at 0337, both in EE; **13680** in SS at 2251. (Jeffery, NY) **9550** with Cuban jazz at 0640. (Barton, AZ) **9820** at 0345. (DiMaria, IL) **11970** in SS at 0107. (Foss, AK)

CYPRUS — Cypress Broadcasting Corporation, **9760** in Greek at 2213 sign-on with guitar IS, local music at 2215, news in Greek at 2216. Weaker on **//6180 and 7105**. (Alexander, PA)

CZECH REPUBLIC — Radio Prague, **7345** at 0030 in SS. (Linonis, PA) 0247 in unidentified language. (Foss, AK)

DENMARK — Radio Denmark, via Norway, **7465** at 0245 in DD. (Barton, AZ)

ECUADOR — Radio Quito, **4920** at 0540 in SS. (Miller, WA) HCJB, **9745** in EE at 0315 and 0508; **15115** in EE at 1928 and **15140** at 2232 in SS. (Jeffery, NY) **9745** at 0405. (DiMaria, IL) 0430. (Hughes, MO) **12015** at 0400. (Linonis, PA) 0457. (Moser, IL)

EGYPT — Radio Cairo, **9745** monitored at 0321 with news and music. (Jeffery, NY) 0318. (Moser, IL)

ENGLAND — Merlin Network One, **6110** at 0618 with "The Album Zone." (Jeffery, NY) **9895** at 0500 with standards. (Provencher, ME) **9915** at 1515 with "Great Britain Top 20." (Foss, AK) **11755** at 2050 with heavy metal. (Dybka, TN) BBC on **5995//9515** at 0245. (Dybka, TN) **6175** at 0649. (Foss, AK) **9515** at 0341 and **9590** at 0000, both via USA. (Jeffery, NY) **9740** at 1526. (Miller, WA) **15565** at 1516 and **17630** at 1457. (Moser, IL)

FRANCE — Radio France Int'l, **11615** at 1621 with news. (Miller, WA)

FRENCH GUIANA — Radio Japan/NHK relay on **9660** at 0347 in JJ with Japanese music. (Jeffery, NY) China Radio Int'l relay on **9730** from 0400 with news of Asia and the Pacific. (Linonis, PA)

GABON — Africa Number One, **9580** in FF monitored at 0500 with news and Afro-pops. (Linonis, PA)

GERMANY — Sunrise Radio via Germany, **5850** monitored at 0756 sign-on with multilingual ID, jingles, commercials, news in EE at 0800. (Alexander, PA) Radio Free Europe/Radio Liberty, **7245** at 0114 in RR. (Silvi, OH) Radio Liberty, **6105** at 0505. (Dybka, TN) Deutsche Welle, **6120** (listed as via Portugal, Ed) at 0534. (Miller, WA) **6185** (*listed via Antigua — Editor*) at 0500 sign-on. (Barton, AZ) **7315** via Russia at 1744 in GG. (Foss, AK) **11750** at 0340. (Moser, IL) **11810** (listed via Antigua, Editor) with "Chart Chat." (Lindley, MA) **11865** at 2103 with news. (Dybka, TN)

GREECE — (presumed) Voice of America relay, **7115** at 0542 with talk. Off 0600. (Jeffery, NY)

GUATEMALA — Radio Maya, **3325** at 0420 in SS with ID, marimbas, tuba. Slight QRM from CHU. (Dybka, TN) Radio Coatan, **4779.7** monitored at 1210 in SS with several mentions of Guatemala. (Barton, AZ) Radio K'ekchi, **4845** at 1100 in SS and with EE ID. (Ziegner, MA)

GUYANA — Voice of Guyana, **5950.15** back here at 0925 with light U.S. instrumentals, ID at 0930 and into local religious programming with Hindi chants at 0931. Covered by WYFR sign-on at 0955. (Alexander, PA)

HAWAII — KWHR, **17510** at 0237 with religion. (Jeffery, NY)

HONDURAS — Radio Internacional, **4930** at 0400 in SS with rapid fire announcements and several clear IDs. (Linonis, PA) (*This station is now Radio Costena, Apt. Postal 34-76, San Pedro Sula — Editor*) La Voz Evangelica, **4820** at 1112 with religious talk in SS. (Hughes, MO)

HUNGARY — Radio Budapest, **9835** at 0211 with "Hungary Today." (Moser, IL)

INDIA — All India Radio, **11620** at 2045 with news and sitar music, ID at 2059. (Dybka, TN) 2053. (Hughes, MO) Tremendous, understandable signal at 2300 with news. (Miller, WA) 0203 with drums, singing, woman announcer. (Moser, IL) **11900** at 0153 with local type music. (Foss, AK) **15140** at 1615 in RR. (Ziegner, MA

IRAN — Voice of Islamic Republic of Iran, **9022** at 1934. Islamic music with female praising Allah in English, news. (1935 with news, music. (Lindley, ME) **15084** at 1630 in Persian. (Ziegner, MA)

ISRAEL — Kol Israel, **9435** at 0505 with news. (Moser, IL) **11585** with news in FF at 2200. (Miller, WA) **11605** at 1712 in unidentified language. (Foss, AK) 2000. (Linonis, PA) Reshet Bet, **7495** at 0028 in Hebrew until 0030, then news in EE, then back to HH at 0034. (Jeffery, NY)

ITALY — RAI, **9675** at 2254 with musical variety show in II. (Miller, WA) **11715** at 2024 announced as English to the "Near East." Also PP from 2047 to after 2100. (Silvi, OH)

JAPAN — Radio Tampa, **6055** at 0950 with classical music, ID 0948, all JJ. (Hughes, MO) NHK Radio Japan, **6110** (*via Sackville, Canada — Editor*) at 0510 with sports news. **9505** at 1453. (Moser, IL) **6165** in JJ at 0708. (Barton, AZ) **7110** in EE at 1710. (Miller, WA) **9535** at 1715. (Foss, AK) **11715** at 0530. (Linonis, PA) (*This is direct, Jack — Editor*)

JORDAN — Radio Jordan, **11690** at 2210 with AA prayer, national anthem and off at 2211. (Miller, WA) 11935 at 1430. Normal

We get mail! Ed Lindley got this "postal" post card from REE, Spain.

EE broadcast pre-empted with AA and mourning for the deceased King. Same at 0024. (Silvi, OH) **13630//13675** at 1811 in AA. (Dybka, TN)

KUWAIT — Radio Kuwait, **9855** in AA at 2200. (DiMaria, IL) **9880** at 1506 in AA and **11675** at 0458 in AA. (Foss, AK) **11990** at 1830 with EE sports news and Western pop. Badly QRM'd by adjacent channel religious broadcaster signing on at 1850. (Linonis, PA) **13620** with AA singing at 1519. (Moser, IL)

LIBERIA — Radio Liberia Int'l, **6100.06** at 0710 with U.S. pops, EE announcements about upcoming local events, IDs, obits, report on construction projects in Liberia. (Alexander, PA)

LIBYA — Radio Jamahiriya, **15415//15435** with AA talks, many mentions of "Lee-BEE-ya." (Dybka, TN)

MAURITANIA — Radio Mauritania, **4837.85V** at 0035 to 0105 close. Still drifting down from **4845**. AA music and talk. Koran. 0735 to 0836 close, **4837.l variable** with talk in unidentified language, local guitar, phone talk. Drifting as usual. **4837.23** at 0735, **4836.4** by 0800 and down to **4836** by 0822 when they quickly moved back to **4845** and remained there until pulling the plug at 0836. (Alexander, PA)

MEXICO — Radio Mil, **6010** monitored at 0835 with SS pops and SS remakes of U.S. '50s songs, SS announcements, promos and canned IDs. (Alexander, PA) Radio Educacion, **6185** at 1145 in SS and EE. Time, temp in Mexico City. (Ziegner, MA) 0825 in SS. (Miller, WA) Radio Mexico Int'l, **9705** at 0400. (Hughes, MO)

MOLDOVA (site presumed) — Voice of Russia, **7125** at 0100-0200, //**7180**, in SS with IDs as "La Voz de Russia." Then at 0200 Gollos Rossii on **7125** was not //7180, which carried Voice of Russia world service in EE. 0400–0500 7125 was //to 7180 VoR World Service. (Silvi, OH)

MOROCCO — RTV Marocaine, **11920** at 0352 with local music. (Foss, AK) 0455 in AA with local music, lady announcer. (Moser, IL)

NAMIBIA — Namibia Broadcasting Corp., **3290** monitored at 0255 with continuous light instrumental music, local pops. //**3270**. (Alexander, PA)

NETHERLANDS ANTILLES — Radio Netherlands Bonaire relay, **6165** at 0427, **9590** at 0432 and **15315** at 1932, all EE. (Jeffery, NY) **15315** to West Africa at 1924. (Burgess) 0034 in SS. (Miller, WA)

NEW ZEALAND — Radio New Zealand Int'l, **9700** at 0935 and **17675** at 0006. (Jeffery, NY) **11675** at 0233. (Foss, AK)

NIGERIA — Voice of Nigeria, **7255** at 0515 with "Wave Train." (Jeffery, NY) 0515 with African music. (Foss, AK) **15120** at 1859 with notes on Nigerian economy, time check at 1900 and into a radio play. (Dybka, TN)

NORTH KOREA — Radio Pyongyang, **7580** at 1343 in JJ. **11710** at 1748 in SS. (Foss, AK)

NORTHERN MARIANAS — Voice of America (presumed) via Tinian on **15250** mostly in EE plus a second broadcast in presumed CC around 1300. Both signals are about equal strength. I can't stay for ID at 1400. Can any one tell me who the CC station is? (Silvi, OH) (*VOA in Chinese is listed here at this time, Lee — Editor*)

PAKISTAN — Radio Pakistan, **15465** at 1440 in Urdu. Into EE news at 1600. (Ziegner, MA)

PAPUA NEW GUINEA — Radio West New Britain, **3235** at 1053 in unidentified language. (Foss, AK) (*Probably Pidgin, Marty—Editor*)

PERU — Radio San Miguel, **6895.26** at 0245 to 0302 close, with Peruvian folk music, SS talk, ID. Off with national anthem. (Alexander, PA) Radio Union, **6115** at 0630 in SS. (Hughes, MO) Radio Andina, **4995** at 1030 in SS. (Hughes, MO) (*Nominally 4996 — Editor*) Radio Cora, **4914.4** at 0807 in SS with spicy salsa music. (Foss, AK)

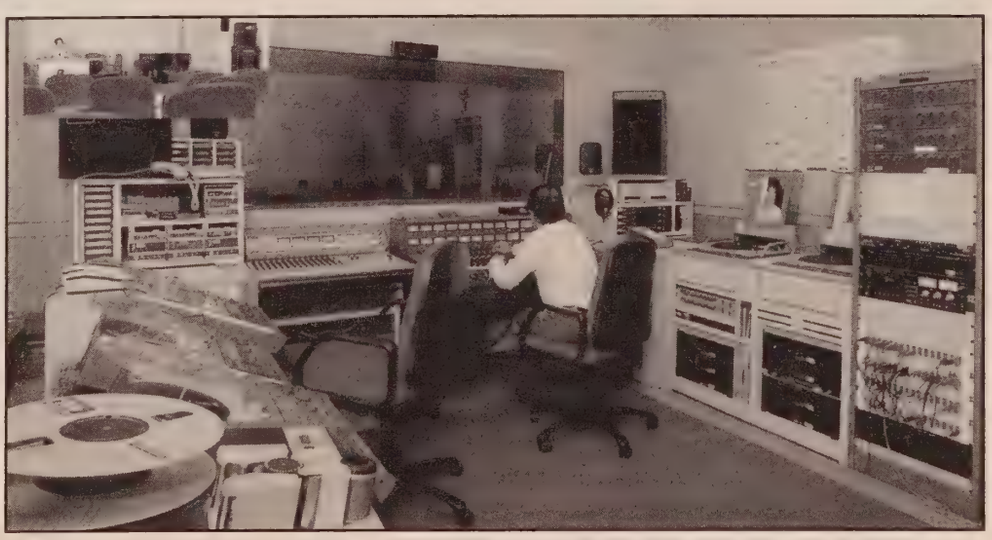
PHILIPPINES — VOA relay, **9760** at 1503 with news. (Foss, AK) **9885** at 1420. (Barton, AZ) **15180** with feature on jazz and movies. (Dybka, TN) **15290** at 0033 in Special English. (Miller, WA) Far East Broadcasting Company, **9405** at 1358 in CC. (Foss, AK) **15465** at 0040. (Miller, WA) Radio Veritas Asia, **9505** at 2320 in unidentified language. Off with EE announcement at 2325. (Hughes, MO)

PORTUGAL — Radio Portugal, **21515** in PP at 1803. (Jeffery, NY) Here and //**9630, 21655** at 1915 in PP with live sports.(Dybka, TN)

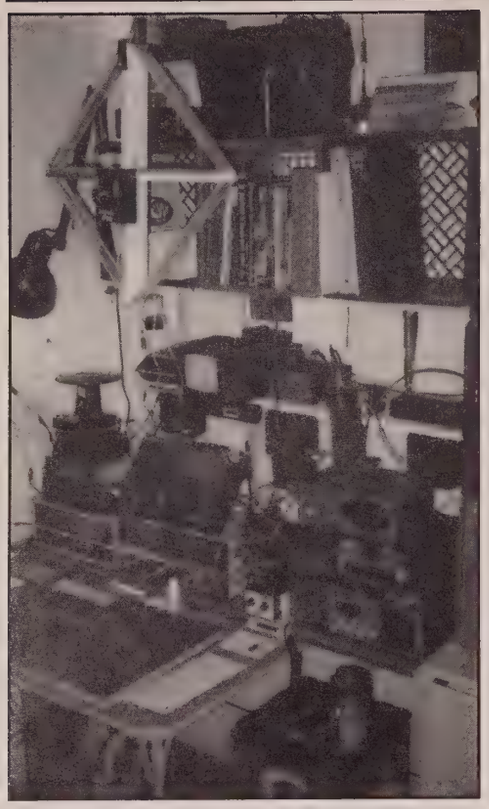
PUERTO RICO — (U.S.) Armed Forces Radio TV Service, **6458.5 USB** at 0056 with live sports, "This is AFS" ID at 0100. (Dybka, TN) (*Note: This is a temporary service. The 6 MHz frequency (only) has been confirmed as coming from Puerto Rico, which has led the North American SW Association Country List Committee to add Puerto Rico to the NASWA country list—Editor*) (See also United States)

ROMANIA — Radio Romania Int'l, **9570** at 0200 with EE to North America. Unable to hear listed **parallels on 6155 or 9510**. **5990** at 0400 to North America is good but unable to hear listed parallel 6155. (Silvi, OH) **15365** at 1700 with IS, ID, and news. (Linonis, PA)

RUSSIA — Voice of Russia, **7125** at 0304 with



A production studio at Radio Exterior Espana.



Ed Lindley does his listening from this well-appointed shack in Biddeford, Maine. Note the indoor loop antenna, upper left.

"News and Views. (Lindley, ME) Here and //**7180** at 0500. (Linonis, PA) Magadan Radio, **9530** at 0627 in RR with a quiz/entertainment program. (Foss, AK) Khabarovsk Radio, **7210** at 0744 with classical music. (Foss, AK) (*Presume RR? — Editor*)

RWANDA — Deutsche Welle relay, **7280** at 0725 with news. (Hughes, MO)

SAO TOME — Voice of America relay, **4960** at 0258 with sign-on, Yankee Doodle and into "Daybreak Africa." (Dybka, TN) **6080** at 0600 with "News Now" format. (Hughes, MO)

SAUDI ARABIA — Broadcasting Service of the Kingdom of Saudi Arabia, **11780** in AA at 1553. (Miller, WA) **15175** at 1451 in AA. (Barton, AZ)

SLOVAKIA — AWR — Voice of Hope, **9465** with talk in unidentified language, multilingual IDs at 0330 and mention of Slovakia as the transmitter site. Into Farsi at 0331. (Alexander, PA) Radio Slovakia Int'l, **11990** at 1404 in unidentified language. (Foss, AK)

SOUTH AFRICA — Channel Africa, **15215** at 0612 with Africa Games news. (Moser, IL) BBC relay, **7125** in unidentified language, under Voice of Russia. BBC IS came on at 0421, off at 0423, back at 0425. (Silvi, OH)

SOUTH KOREA — Radio Korea Int'l, **15575** at 0042 in JJ. (Miller, WA)

SPAIN — Radio Exterior Espana, **6055** at 0030 in EE, 0440 in SS. Also **9540** at 0326 and **9620** at 0416, both in SS. (Jeffery, NY) **6055** at 0145 in EE. (DiMaria, IL) New **9665** at 1935 in SS with futebol coverage, **ex-9745. Parallel 7275, 9630, 11815, 15125.** (Alexander, PA)

SWITZERLAND — Swiss Radio Int'l, **6135** at 0330, "Rendezvous With Switzerland." (Lindley, ME) **9885** at 0059 in GG, ID 0100 and into EE. (Foss, AK) **15185** at 1615 in Italian with brief news headlines. (Linonis, PA)

TAIWAN — WYFR via Radio Taipei Int'l, **9955** at 1605 with religion. (Barton, AZ) Radio Taipei Int'l, via WYFR, **15440** at 0038 in CC. (Miller, WA)

THAILAND — Radio Thailand, **7285** at 1100 in VV, then into Khmer. Off with EE at 1130. (Hughes, MO) **9535** at 2000 in German. EE ID at 2017 and into FF. (Alexander, PA)

TURKEY — Voice of Turkey, **9655** at 0313 with news. (Moser, IL)

UKRAINE — Radio Ukraine Int'l **4820** at 2215 with EE news, comment, features, IDs, light instrumental music, IS at 2300 and into unidentified language. //**5905, 7205, 9560.** Also heard on **4820** with EE at 0100, //**5905, 7205.** (Alexander, PA) **7150** at 2200 and 0154. (Moser, IL)

UNITED STATES — AFRTS, **4275.5 USB** at 0210 with news features from USA Radio, CBS, CNN. AFN/AFRTS IDs. //**6458.5 and 12689.5, all in USB.** (Alexander, PA) (*The 4 and 12 MHz frequencies come from Key West, Florida — Editor*)

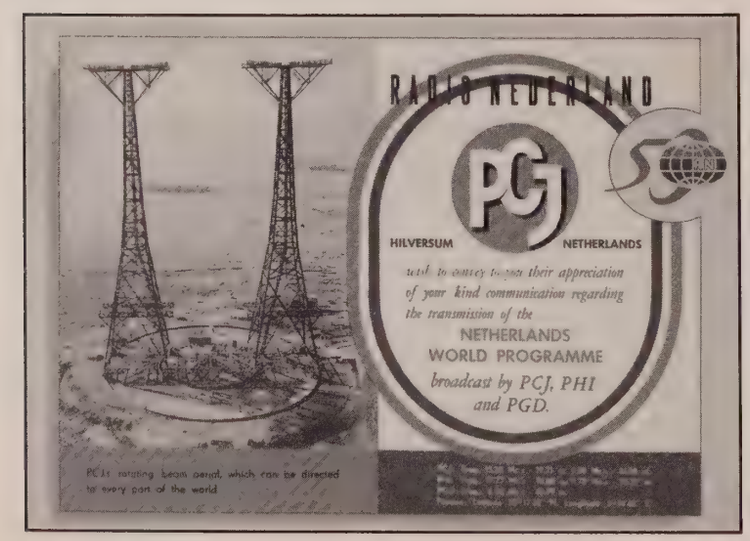
VATICAN — Vatican Radio, **5882** monitored at 0600 with a speech by the Pope. (Lindley, ME) **7305** at 0234 in FF. (Foss, AK) **9660** at 0525 in EE with music, ID, IS, and off at 0529. (Jeffery, NY)

VIETNAM — Voice of Vietnam, **7250** (*via Russia — Editor*) at 0230 with news and local music. (Lindley, ME) **7260** (*also via Russia — Editor*) in VV at 0327. Pause to 0330 and then on in EE. (Moser, IL)

YUGOSLAVIA — Radio Yugoslavia, **7115** at 0108 with news, sports. (Lindley, ME)

And that wraps it. A sweeping bow, and mighty roar of approval for those who did the good thing this month: Lee Silvi, Mentor, Ohio; Edouard S. Provencher, Biddeford, Maine; Michael Miller, Issaquah, Washington; Tricia Ziegner, Westford, Massachusetts; Dave Jeffery, Niagara Falls, New York; Marty Foss, Talkeetna, Alaska; Jack Linonis, West Middlesex, Pennsylvania; Howard J. Moser, Lincolnshire, Illinois; Rick Barton, Phoenix, Arizona; Dave Hughes, Kansas City, Missouri; Jill Dybka, Nashville, Tennessee; Mark Northrup, Gladstone, Missouri; Brian Alexander, Mechanicsburg, Pennsylvania; David DiMaria, Addison, Illinois and Dean Burgess, Manchester, Massachusetts. Thanks to each one of you!

Until next month — good listening! ■



This Radio Netherlands QSL is a reproduction of one of the most famous QSLs of all — dating back to the early days of shortwave when PCJ, the predecessor of Radio Netherlands, was as big a world voice as Radio Netherlands is today.

World Harvest Radio sends this QSL to confirm reception of its WHRA station in Greenbush, Maine.

Product Spotlight

POP'COMM REVIEWS PRODUCTS OF INTEREST

BY KEN REISS
<Armadillo1@aol.com>

Optoelectronic's Optotrakker Communications Decoder

Optoelectronics recently released their newest in a long line of excellent tone decoders, the Optotrakker. Like all tone readers, the Optotrakker connects to the audio, or preferably, the discriminator output of your scanner and then reads both sub-audible and certain kinds of audible tones that are routinely transmitted with the radio signal.

The Optotrakker decodes CTCSS, DCS, and DTMF tones. Those are, in order, Continuous Tone Code Squelch System, Digital Code Squelch, and Dual-Tone Multi-Frequency. You probably know DTMF by it's commercial name-Touch Tone.™ All of these codes are routinely used by business and public safety two-way radio users.

What makes the Optotrakker unique is its ability to decode *trunking information* in addition to the above modes. The unit can read EF Johnson's LTR trunking information (which is also a sub-audible mode). That info will show on the display as four numeric fields — Area Code, Home Repeater, User ID, and Current Repeater ID estimate. You can also run the unit in an "ASCII Dump" mode connected to a terminal program and see the raw LTR data if you desire.

The Optotrakker makes a great add-on decoder to almost any radio. It also works with computer-controlled systems to add tone capabilities and trunking functions.

The Crown Jewel

The Optotrakker can also read Motorola Type II trunking systems. This is accomplished by reading the low-speed data that is transmitted on the voice channels, rather than the control channel data stream. The data can be programmed to appear on screen in either hexadecimal or decimal mode (the base 16 numbers actually used by the Motorola equipment, or a base 10 number that's easier for us humans to digest).

The Optotrakker does most of its computer-control work through a CI-V (Communications Interface-Five) connection, which is the standard developed by ICOM and extended by Optoelectronics, that allows connection of multiple devices to the computer. Of course, the Optotrakker can be used without a computer connection as a stand-alone decoder, but the real power comes into play with the computer — more about that in a minute.

Getting the Optotrakker installed can be a very simple process, or a somewhat complicated one, depending on how you want to use the unit. As a tone decoder, the Optotrakker is compatible with virtually any receiver. If you're only interested in using the unit as a stand-alone decoder, Optoelectronics recommends a discriminator connection, but I've had a fair amount of success using just the record output audio. The discriminator connection means you will have to open up the receiver and make some connections on all radios, except the ICOM R-8500 and PCR-1000.

In addition to the discriminator connection, many receivers will also require a squelch status connection. Again, you may not need this, depending on how much control you want the system to provide. I'll have to admit that I did not perform the squelch modification on any of the receivers I used for testing, and was quite happy with the performance. Your mileage may vary.

If you would like to go further, and allow the unit to control your receiver through a computer interface, then there are some additional considerations. The list of radios supported by the Optotrakker is quite extensive and impressive. Note that a few functions are not available with one radio or another under certain software control. This depending on the installation. Also worth noting is that the PCR-1000 is not a CI-V receiver, so the Optotrakker will decode data from the discriminator output jack, but cannot be used in a computer control environment.

What's Included?

When you open the Optotrakker box, you'll find a number of surprises. There is, of course, the Optotrakker itself packaged in bubble wrap, the power supply (typical wall wart type transformer), owner's manual, and software disk. The disk contains TrackStar, ScanStar's little brother, that allows for computer control and trunk following. Also included are cables for a DB-9 serial connection, CI-V cables, and an AR-8000 cable. You'll be all set to hook right up, except for a few receivers noted in the sidebar.

Once the connections are made, you're ready to install the software. Optotrakker comes with a copy of TrackStar, a limited version of the popular ScanStar program. If you own ScanStar, upgrades are available that support the Optotrakker, as

well as the full range of features that you're used to having in ScanStar. Software installation is relatively simple and should present little problem.

Operation

In the stand-alone mode, the operation of the Trakker is very easy. Simply turn the power on, and select the mode you're interested in by repeatedly pressing the power button. My favorite is the "all mode decode," which will decode CTCSS, DCS, and DTMF at the same time. This is very convenient to help identify the transmitting agency, or numbers being dialed. If you're only interested in one kind of tone or another, each of those modes also has its own dedicated mode.

To access the trunking modes, you'll have to enter the specific trunking mode of interest. There is a mode for LTR and a mode for Motorola (MOT) and a companion mode for each that decodes the trunking protocol and DTMF information. You might want to take a minute and configure the Motorola mode to display the numbers in your choice of hexadecimal or decimal digits.

To take full advantage of the Optotrakker, you'll want to tie it to your computer so that you can use the tone reader to provide tone squelch and the trunking modes to follow the trunked conversations. TrackStar will follow the Motorola trunking information as supplied, but for LTR following, you'll need an upgraded version.

TrackStar gets trunking information from the actual conversation channels themselves, rather than the control channel. There is data transmitted sub-audibly on each of the conversation channels used by the radios in the system to make sure that they are on the right channel. This so-called "Low Speed Handshake" is always present on a Motorola trunked channel.

One of the big advantages to decoding the low-speed data and not the control channel is that you don't have to tie up the radio's time looking at the control channel while waiting for something to happen. That leaves you free to scan conventional channels at the same time, or multiple Motorola trunked systems. One major disadvantage can be found on a busy system.

The system checks each of the possible voice channels, looking for an ID that we're interested in monitoring. If a system is busy, and contains a lot of channels, the software will have to plow

Shown here decoding a CTCSS tone, the controls on the Optotrakker are simple, yet complete. The large display lights as a tone is received (if desired) making it easy to read even from several feet away.

Optotrakker Receiver Support

In addition to its excellent capabilities as a tone decoder, the Optotrakker can be used in conjunction with a computer-control system and certain radios. Below is a list of the supported radios, and the internal connections required for full support of the Optotrakker. Note that some applications, like trunking, do not use the squelch status function and won't require that modification. For stand-alone decoding, the squelch status is optional, but be sure to check the configuration options to ensure correct operation and decoding of subaudible data.

AOR 5000 — Requires an internal discriminator modification detailed in the AR-5000 manual. A special cable is required, which is not supplied with the Optotrakker.

AOR AR8000 — Requires both squelch and discriminator modifications. Optoelectronics recommends that the unit be sent to a technician for modification.*

ICOM R-7000 — Requires both squelch and discriminator modifications. Many software programs need the squelch information from this receiver to perform correctly.

ICOM R-7100 — Requires both squelch and discriminator modifications.

ICOM R-8500 — Requires internal jumper set for discriminator output on factory installed jack. A special cable (not supplied with the Optotrakker) will be required to make the connection.

RadioShack PRO 2005/2006 — Requires both squelch and discriminator modifications. Can be supported by Optoscan 456 or 456 Lite interface with software as well.

RadioShack PRO 2035/2042 — Requires both squelch and discriminator modifications. Can be supported by Optoscan 535 interface with software as well.

*Optoelectronics recommends Electronics Unlimited, Inc., in Lake Park, Florida, to make modifications to your receiver if you are uncomfortable doing it yourself. They can be reached at 561-627-9610 or via E-mail at <eui@mcione.com>.

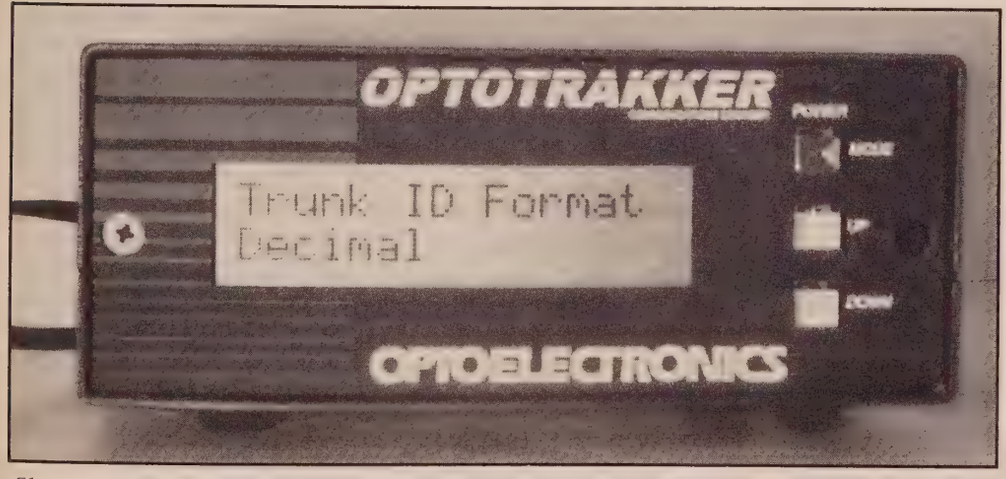
A myriad of connections is available on the rear panel, but unless you're using the unit under computer control, you'll only need power and audio at the upper left. Note the AR-8000 ribbon connector at the bottom left.

through, looking at each of the channels for an ID on our hit list. It takes time — a fraction of a second, to switch to a trunked frequency, find out if it's busy or not, and then read the data to see if it's a talkgroup that you're interested in monitoring. It's not a lot of time, but there is a slight delay, and on a busy system, it can add up to several seconds and contribute to a slow overall scan speed.

The worst case would be a busy system, where you're only interested in one or two ID numbers that aren't very active. In practice, here on our system in St. Louis, I've only noticed a real delay a couple of times, although I'm usually looking for 15 to 30 IDs. There is also some difficulty with following type I and hybrid systems, although I understand that's being worked on.

If you don't have a tone decoder, you'll probably want one. As more and more systems move toward trunking, and as the conventional bands get more and more crowded, tone squelch (CTCSS or DCS) becomes more important. The ability to follow a trunked conversation greatly enhances the value of an older receiver. The Optotrakker is by far the most complete and easy-to-operate unit I have seen to date. Check it out! I'm sure you'll find a place for it in your shack. It found a permanent home in mine.

For more information on the Optotrakker, which sells for $299, contact Optoelectronics, 5821 NE 14th Avenue, Ft. Lauderdale, FL 33334 or phone 800-327-5912. You can also E-mail Optoelectronics at <sales@optoelectronics.com>.



Shown here is the trunk ID format. The menu commands are easy to follow and the prompts are easy to understand, once you've read the manual. Most options only need to be set once. For those interested, the Optotrakker includes a Y2K compliant clock.

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CIRCLE 11 ON READER SERVICE CARD

Adonis AM-7500E — The Ultimate Microphone For The Discriminating Hobbyist

By Ed Barnat

Adonis, according to Greek mythology, was a very attractive young gentleman — so handsome, in fact, that he captivated no less a suitor than the goddess of love herself, Aphrodite.

True to its namesake, the handsome Adonis AM-7500E, by RF Limited, will make an elegant addition to even the most aesthetically designed amateur, CB, or commercial radio station. Constructed of an anodized aluminum base, the AM-7500E sports a gracefully mounted gooseneck microphone suspended above a tastefully-designed control panel.

Beyond its pleasing appearance, the AM-7500E offers unrivaled performance, control, and flexibility. Its highly-sensitive electret microphone element is capable of producing near broadcast-quality audio. Mounted on the flexible gooseneck, it can be easily adjusted to ensure maximum operator comfort and convenience. A speech compressor and graphic equalizer amply augment its high-quality audio amplifier. Combined, these features give the operator full control over the strength, quality, and consistency of the transmitted audio. This is something that lesser microphones just can't do. The high-quality speech compressor optimizes the transmitted audio levels and keeps them constant, without distortion, regardless of the audio input level. Not only does this help minimize splatter and bleed, but it concentrates your signal for maximum range and efficiency.

The speech compressor has three stages from which an operator may select. High compression, which operates at about 45 dB, delivers the maximum amount of audio output. It is most useful for operators who "sit back" from the mic or speak in a low voice. However, because it makes the mic extremely sensitive, this level also picks up the most background noise. Therefore, it is best suited for quiet environments.

At medium setting, the compressor operates at 30 dB. This is best suited for normal contacts and operating conditions. The low setting, about 10dB, is great for use while operating in noisy environments. You'll have to work close to the mic, but it virtually eliminates background noise (TV, fans, air conditioners, other radios) without diminishing output.

Includes A Four-Band Graphic Equalizer

In addition to speech compression, the AM-7500E includes a four-band graphic equalizer to further customize your transmitted audio. The equalizer has centered frequencies at 270 Hz, 540 Hz, 1000 Hz, and 2000 Hz. This provides the best audio quality for your FM transmissions and maximum efficiency for SSB and AM DX transmissions.

Of course, the AM-7500E offers some of the standard features you would expect to find on a desk or base mic, such as an output level control to adjust the audio level, as well as both momentary and locking push-to-talk switches.

In addition, however, you'll find up and down frequency controls for radios that support them. A large VU meter lets you visually monitor the audio signal passing through the microphone. Should you lock the microphone on and forget that you have left it keyed up, an alarm beeps after two minutes to remind you. The manufacturer says that this feature can be disabled, although I could not figure out how.

The Adonis AM-7500E microphone from RF Limited.

There is an illuminated transmit indicator. It lights solidly when you are transmitting and blinks when the mic is turned on but not keyed up. There is even a nice little "Roger Beep." Not being personally fond of "Roger," I found this one surprisingly pleasant. It is short and low-key and best of all, it only beeps on the operator side of the mic. In other words, you hear it (so you will know that you have indeed keyed up) but they don't! Great idea! All "Rogers" should be built that way. Nice little beep, right where it belongs, on the operator side, no over-the-air nonsense.

The microphone runs on four "AA" batteries or you can purchase an optional DC power adapter (Model PS-6A) and use an external power supply. Some radios may be able to provide power directly to the mic. If you decide to power the mic with batteries, a selectable battery level tester lets you monitor their health via the VU meter.

The AM-7500E uses Adonis Adapter Cables (available separately) to connect your transceiver, which makes switching between radios a "solder-less" experience. Optional switch boxes are also available, which allow you to operate several radios using a single mic or run several mics on one radio. There is even an optional foot switch for hands-free operation.

Also true to its namesake, the AM-7500E may be for most, the unattainable dream. Legend has it that Aphrodite's affections were not returned. Adonis had other things on his mind and never reciprocated her attention. Fully accessorized, the AM-7500E can easily run over $300, putting it well out of reach of all but the most ardent of operators. Obviously, this is not a mic for the masses.

Personal Impressions

I must admit that, after learning the price of the mic, I was less than impressed when I first opened the box. For $300, I expect-

ed echo chambers, sound effects, tons of chrome, and more.

I hooked the Adonis up to my Cobra 2000. The custom cables RF sent worked perfectly. They cost an additional $30. I also opted to use the DC converter, an additional $25, instead of batteries and was soon ready to try this, now $330 microphone.

You have got to know going in, that I am frugal. Oh, alright, I am cheap. Any microphone that costs $330 is really going to have to perform if it's going to permanently claim any real-estate on my bench. It did not take long, however, before I began to realize that I was going to hate to send it back after the evaluation period had ended.

Adonis, in the classical sense of the word, might be a pretty good name for it after all. It is a darn good-looking mic. Not only is it good-looking, but it is quite a capable hunter. On the air, it easily worked as well as my Turner +3B and offered more options and adjustments. Given enough time and practice to be able to fine-tune the compressors and equalizer, I would not be surprised if it actually outperforms the Turner.

Classic and classy, the AM-7500E truly adds a quality touch of elegance for discriminating operators. It sounds good on the air and looks great on the bench. It is *the* mic for operators who won't settle for anything less than the best.

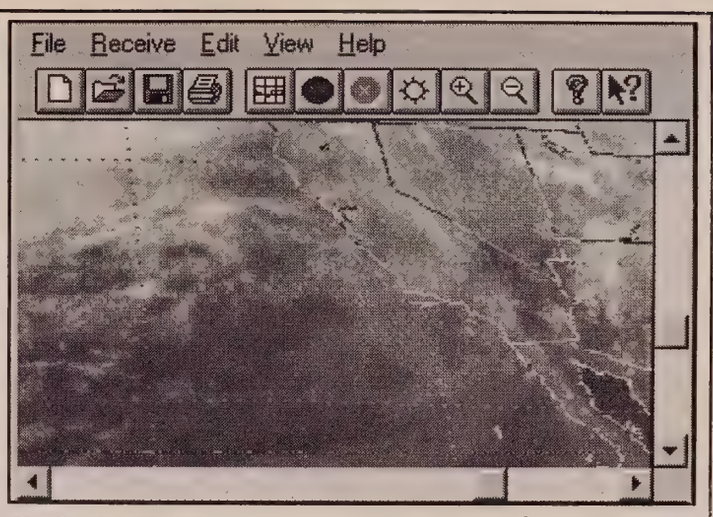
Amateur radio operators may or may not find the price of this mic shocking. Amateurs, after all, are used to paying hundreds or thousands of dollars for quality equipment. Therefore, it may be fairly easy to envision the AM-7500E sitting on a bench with amateur radios.

Multi-service operators, those of us who ply both the amateur and citizens bands, might also find this mic attractive, not only because of its quality and on-the-air performance, but because of the optional switch boxes available for it that allows this mic to operate more than one radio.

CB operators, on the other hand, are known for running $49 radios. So, it is hard to imagine hooking a $300 mic to a sub-$100 radio. There are, however, many serious CB operators who run quality equipment. My Cobra 2000, for instance, cost almost as much as this mic. I know that there are many other CBers who run equipment of equal or greater value. For those CBers who do run quality equipment and who take as much pride and satisfaction in their ability to operate and control their station as any amateur operator does, the AM-7500E offers some important advantages over lesser mics.

CBers legally can't do much to their radios to boost performance. They can't (legally) boost power, or make internal adjustments to the transmitter. They can, however, modify their input, through the microphone. It is here that the AM-7500E really shines. CB operators can take full advantage of the AM-7500E's speech compression, not only to eliminate much — if not most — of the annoying background sounds that so often accompany standard CB power mics, but reduce RFI and other forms of bleed and splatter to their neighbors. In addition, the compression and other adjustments this mic offers can concentrate their audio and boost their range. This is especially true on SSB and particularly when working skip stations.

For any operator, on any service, who is looking for a good, perhaps the best, desk mic on the market — despite its price and somewhat odd name — the Adonis AM-7500E deserves serious consideration. The AM-7500E retails for $269.95 and has a full one-year warranty. For a free, full-color catalog with all features and specifications, contact Adonis USA, P.O. Box 1124, Issaquah, WA 98027; Phone: 425-558-9592; FAX: 425-558-9704; E-mail:<info@rflimited.com; or check out their Website at <http://www.rflimited.com>.



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CIRCLE 68 ON READER SERVICE CARD

The Ham Column

BY KIRK KLEINSCHMIDT, NTØZ

GETTING STARTED AS A RADIO AMATEUR

Can We Talk?

For the past several weeks, I've been ragchewing with the "guys" on 75 meters— something I haven't done in more than 15 years. Most of my 22 years as a ham have been spent working CW contacts, building radio gear, searching for the next DX QSO, or tracking down a new state for one QRP award or another.

As this solar cycle peaks, I find myself exploring new ham radio avenues. I'm now on 6 meters, for example, and I'm putting a small mobile rig (and a rather large antenna) in my truck. But these are fodder for upcoming columns.

The Timewave DSP Box.

"What's really struck me about my late-night 75-meter SSB adventures is just how* communicative *some hams can be."

What's really struck me about my late-night 75-meter SSB adventures is just how *communicative* some hams can be. Perhaps it's because of my previous slant toward Morse code, where shorter, more to-the-point QSOs are the norm. Or, perhaps it's because these guys chat the night away into the pre-dawn hours of the morning. Being a confirmed night owl, these particular ragchewers are right on my wavelength. Whatever it is, there's something about the whole thing that's providing a "missing element" — *real communication* — the kind shared among friends, or between *real* people. Sure, a lot of ham radio shows through. We *are* hams, after all! But these guys get on to talk first, and pursue radio, second. This really has me thinking. There are many lessons to be learned here.

You see, many hams see our hobby as a purely technical pursuit. Ask anyone and they'll tell you that ham radio has a lot to do with complicated concepts and technology. And don't forget the tests we're all required to pass to get our licenses! Although beginning hams no longer need to learn Morse code, we do need to bone up on radio and electronics theory.

With all of the study, brainpower, and red tape involved, you'd think that the whole mess is about technology, right? About knowing when 10 meters will be open to the Pacific, how grounded-grid linear amplifiers are tuned, or how digital signal processing helps dig out those weak DX signals. Wrong! That's the great irony about ham radio. For most of us, the technology is simply a vehicle for an underlying, deeper reason for participating: communicating with other people who share similar interests (local or faraway).

To effectively participate, we need to learn about the technology involved — and certainly about operating procedures and protocols (that is, HOW to correctly communicate with others using whatever technology is involved) — but once that's learned, we're still faced with simply *talking* to someone else. Having a conversation. Sharing something of ourselves. Learning something about the person on the other end of the mic, key, or keyboard.

Sure, there are some who become hams for primarily "technical" reasons. They might love to build radios, or study the intricacies of VHF propagation from a scientific standpoint. But even these folks love to talk to other hams who SHARE their particular interest. Just listen to two "home-brewing" hams talk about building *anything* and you'll be convinced. So it's all really about communicating. And to maximize your enjoyment of amateur radio, you need to be a good communicator. It's not difficult, but a refresher course can often help get the ball rolling.

Before we discuss ways to have more fun talking with and learning about our fellow hams, let's review several (unfortunately) typical exchanges you could hear on the bands almost anywhere. The rapid fire exchange between "robot DXers" immediately comes to mind: callsign, signal report, radios. Over and over. Amazingly, it took me 15 years to become bored with this. How long will it take you? (I'm not picking on contesters, just hams who seem to NEVER STOP contesting.) The domestic version is just as boring: name, location, signal report, rig, antenna type, see-ya-later. Over and over. Painfully boring! Why bother turning on the rig?

Most repeater conversations aren't much better, although some greater communication takes place occasionally — if only to convey street directions to inquisitive hams who are passing through town. Instead of propagating (and perpetrating) these limited comms, why not enhance your communicating skills and expand your ham radio horizons? There are millions of interesting individuals out there disguised as ham operators. Dig deeper— you won't be disappointed.

Have A Conversation

Here are a few tips to break the ice. Remember: Don't be shy! If necessary,

just blurt something out. If your QSOs are stuck in a boring rut, dare to do something different. You'll enjoy amateur radio in an exciting new way.

"There's no doubt about it: The handiest tool for ham radio conversationalists is a good map or atlas."

• **The Handy Map/Atlas**. There's no doubt about it: The handiest tool for ham radio conversationalists is a good map or atlas. When you figure out where the other "guy" lives, check out his QTH on the map. That little blue squiggle might seem insignificant on your end, but your new friend might have been trout fishing there since he was a kid. By simply asking about the local geography, at least two things will happen: you'll learn a lot more about that little blue squiggle (or whatever it is), and you'll wake the ham on the other end up to the fact that a real conversation is about to take place. Both are big steps in the right direction.

• **Famous Places.** If you or your QSO partner live in a "famous place," feel free to get a little conversational mileage out of it. If you're chatting with someone in Winterset, Iowa, try out your best John Wayne accent. It couldn't hurt, could it? I've started many an interesting QSO by mentioning that I live in Little Falls, Minnesota, the boyhood home of Charles Lindbergh (and the stomping ground of Paul Bunyan and his blue ox Babe). You can, too.

• **The Big Question.** Asking people questions — on almost any topic — can often spice up an otherwise routine exchange. Be tactful, but ask away. Examples: "What do you do for a living?" "How about those Minnesota Vikings?" "Have you ever been to Japan?" You get the idea. To narrow down the range of possibilities, tailor your Big Question to what you already know about your QSO partner — or what you intuit or suspect.

• **Say Cheese!** One of the most interesting and potentially rewarding ways to visually liven things up — usually with a "more established" QSO partner — is the Film Exchange. You each shoot a roll of film, choosing subjects that have meaning to your ham radio and personal lives, and then you exchange the undeveloped film or the printed pictures. When the exchange is complete, you hook up on the air to discuss the photos. This adds a visual element to the mix in a very personal way. If you're both into the Internet, take digital pix and post them on your respective Websites.

• **IDs**. As long as it's within reason, feel free to let other hams know a little bit about what you're up to. Instead of keying the repeater with "This is W9XYZ, listening," try "This is W9XYZ, on a round-the-world motorcycle trip, listening." Which do you think would garner more responses on a typical sleepy repeater? Maybe the old-timer's CQ — "This is Bill, W9XYZ, calling CQ from the Louisiana bayou town of Swampy Creek" — heard regularly in years past, has some merit. Don't use it while checking into an emergency net, and don't use it all the time, but you might give it a try on an uncrowded HF band just to see what happens.

• **Delicate Subjects**. One last word of advice: Be careful when discussing potentially controversial subjects such as politics, religion, sex, light beer, left-handed golfers, etc. I'm not trying to step on your First Amendment rights, I'm merely suggesting that you should be respectful and use common courtesy when bringing up certain topics. Amateur radio *is* diverse, but it's also tolerant and accepting. The best ham radio discussions build on a common ground of shared interests.

"You never know when you'll make a lifelong friend you would have otherwise overlooked because of a 'cut and dried' QSO!"

Regardless of which techniques you use (there are many more than those listed here), taking steps to make ham radio friends through better conversation will only increase your enjoyment of our hobby. You never know when you'll make a lifelong friend you would have otherwise overlooked because of a "cut and dried" QSO!

That's it for this month. Send your photos, letters, and any column suggestions to "The Ham Column," *Popular Communications,* 25 Newbridge Road, Hicksville, NY 11801.

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Technology Trends

As I mentioned earlier in this month's column, as the present solar cycle peaks —and ham radio peaks along with it — I'm trying out a few new things and covering some new ground. During the past decade, perhaps as a run-up to the start of the next century, ham radio technology has been steadily forging ahead. As a regular part of "The Ham Column," I'll be sharing my experiences with some of the "new stuff" from time to time. The first installment is about digital signal processors.

DSP Boxes: They DO Work

Outboard digital signal processors have been around for more than 10 years, and hams have used them with varying degrees of success for the duration. A typical DSP box goes between the audio output of your receiver and your speaker or headphones. The DSP unit converts your received audio-to-digital information (somewhat like that found on a CD recording), performs various bandwidth, notching, "de-noising," and other filtering functions, and converts the "processed" information back to audio.

The last time I'd played around with a DSP box was 1993. The kit-built DSP box worked pretty well, but it wasn't all that easy to select the various filtering functions, and the unit was affected by changes in audio levels (AGC).

As a representative of modern DSP boxes, Timewave's DSP-599zx showed me that my previous concerns were outdated issues. During the recent *CQ* 160-meter contest, for example, the 599zx helped me *clearly* copy CW stations that were *hardly detectable* with the filter switched out. I could "dial in" any CW filter bandwidth between 85 and 600 Hz — with little or no "ringing" — a problem that plagued the audio filters I'd built in years past. And the filter skirts were the proverbial "brick walls."

Unlike traditional audio filters, if I heard an unwanted signal off to the side of my desired signal, I could simply reduce the DSP filter bandwidth a *teeny* bit and the unwanted station would just disappear! One second he's there, the next he's gone. This made contest operation with my mobile rig — which isn't designed for contesting — much easier.

The other functions worked well, too. If band or computer-generated noise became a problem, I just hit the "noise eliminator" button for some relief. I easily worked more than a hundred RTTY QSOs during a *CQ*-sponsored RTTY Contest. With a built-in RTTY demodulator and those razor-sharp filter skirts, the contest was easy and fun.

Are annoying heterodynes hampering your SSB QSOs (or SWL AM reception)? When they bothered me, I simply pushed the "tone eliminator" button and the offending heterodynes or "tuner uppers" disappeared. For more information, point your browser to <http://www.timewave.com>. If you're using an older HF rig, or if your present radio needs help in the filter department, be sure to try out a *modern* DSP box. I'm sure glad I did! — NT0Z

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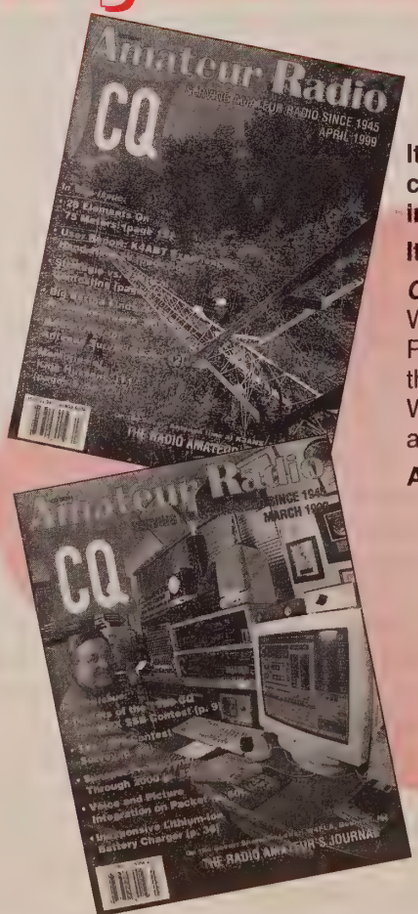

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YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

A Short Reprieve

In May, I wrote about the closure of the AT&T coastal maritime stations; KMI California, WOO New Jersey, and WOM Florida. They had been broadcasting an announcement throughout February that the stations were to be closed February 28, 1999. However, it seems that the news of their death was greatly exaggerated — at least for now. In a surprise move, the FCC denied AT&T's request to close their HF stations. Since FCC approval was needed, KMI, WOM, and WOO will be in operation indefinitely. However, I would not expect the reprieve to last too long. AT&T is sure to continue to try and gain approval to close the three stations. Unconfirmed reports indicate that WLO Mobile Radio, Louisiana, is taking steps to handle the traffic from the AT&T stations. Once that is accomplished, AT&T should receive their approval to close.

Wire photo image captured by Ron Tull in Whitehorse, Yukon, Canada, from KCNA Pyongyang, N. Korea on 13580.0 kHz.

Military Exercises

Utility listeners were treated to several exercises during late February and early March. On the West coast, to further ensure it is ready for the year 2000, 14 U.S. Navy ships, one ship from the U.S. Coast Guard, and one Canadian ship got underway February 19 to begin a detailed Y2K validation exercise off the coast of Southern California. The validation was a multi-level, battle group exercise designed to ensure the multi-ship groups that form the basis of how the Navy deploys can work together as a team without interference from Y2K-related problems. Ships participating in the validation exercise include: *USS Constellation* (CV-64), *USS Kinkaid* (DD-965), *USS Benfold* (DDG- 65), *USS Peleliu* (LHA-5), *USS Ogden* (LPD-5), *USS Rushmore* (LSD- 47), *USS Stethem* (DDG-63), *USS Coronado* (AGF-11), *USS Chosin* (CG-65), *USS Lake Erie* (CG-70), *USS Sacramento* (AOE-1), *USS Santa Fe* (SSN-763), *USS David R. Ray* (DD-971), *USS Ingraham* (FFG-61), *USCGC Midgett* (WHEC-726), and *HMCS Regina* (FFH-334).

On the East coast, more than 24,000 U.S. joint service members, as well as personnel and units from Allied nations, participated in Joint Task Force Exercise (JTFEX) 99-1, February 12 – March 2, 1999. The *USS Theodore Roosevelt* (CVN-71) Carrier Battle Group and the *USS Kearsarge* (LHD-3) Amphibious Ready Group (ARG), in addition to units from Great Britain, the Netherlands, France, Belgium, Canada, Germany, Bolivia, and Brazil, participated in the exercise. JTFEX exercises replicate emerging threats and operational challenges military forces may encounter around the world and are designed to be realistic training. JTFEX 99-1 took place in the waters off Virginia and North Carolina, as well as the Puerto Rican and Jacksonville, Florida, operating areas, and created some interesting listening.

Other News

Also in May, I mentioned the Five Hundred Club in Japan. I did not have a regular mail address for them at deadline, but it is: Hozumi Yamamoto, Five Hundred Club, 438-1, Sinmachi, Manomachi, Sadogun, Niigata, 952-0318 Japan.

The coastal minehunter *Shrike* (MHC-62) was delivered to the Navy during a ceremony January 11 at Intermarine USA Shipyard in Savannah, Georgia. The 12th and final Osprey-class coastal minehunter will be formally commissioned May 31 in Baton Rouge, Louisiana. Osprey-class coastal minehunters are state-of-the-art ships designed to hunt for mines and clear harbors, coastal, or ocean waters of acoustic, magnetic, pressure, and contact mines. The remote vehicle carried by them can also neutralize mines using explosives and other techniques. *Shrike's* non-magnetic hull is made of a single piece of molded fiberglass. *Shrike* will be homeported in Ingleside, Texas, home of the Navy's Mine Warfare Command.

The *USS James K. Polk* (SSN-645) was honored January 8 during deactivation ceremonies at Naval Station Norfolk. The nuclear-powered attack submarine was commissioned as SSBN-645 on April 16, 1966. She completed her last patrol as a ballistic missile submarine in August 1991.

In March 1994, *the USS James K. Polk* completed a 19-month conversion at Newport News Shipbuilding from a ballistic missile to an attack submarine with special operating forces capabilities. She then changed homeports to Norfolk and joined Submarine Squadron Six, where she finished her career. The *USS James K. Polk* and crew departed Norfolk for the

Photo by Andrea Borgnino, Italy, of 12-element log periodic antenna atop the Rome headquarters of "Salini Costruttori," who operate on 20584.0 kHz.

last time January 12 en-route to Puget Sound Naval Shipyard, Washington, for decommissioning.

Strike Fighter Squadron (VFA) 122 was established January 15 at Naval Air Station (NAS) Lemoore, California, as the Fleet Readiness Squadron for the F/A-18E/F Super Hornet strike fighter. VFA-122 will be fully formed in 2002. The first phase of the fleet introduction of the Super Hornet will be from 1999 to 2004, with the addition of 92 F/A-18E/Fs to the Strike Fighter Wing at NAS Lemoore. There will be one fleet replacement squadron and four fleet operational squadrons. The last I had read, Super Hornets had retained HF radio equipment.

Naval Station Rodman, Panama Canal Zone, held a transfer ceremony on March 11 in preparation for its eventual closure in April, 1999. Rodman will be turned over to the government of Panama, as stipulated in the Panama Canal Treaty of 1977. The treaty, which was signed September 7, 1977, states that all U.S. military property in Panama will be transferred to Panama by December 31, 1999. The U.S. Navy will be the first service component to depart Panama. Readers may recall logs of U.S. Army vessels working ***"RAIDER,"*** which was the 1097th Transportation Company at NAS Rodman Panama Canal Zone.

Also relating to Panama treaty, ten C-27s assigned to the 310th Airlift Squadron at Howard Air Force Base, Panama, who flew a variety of missions in the region, including humanitarian assistance, peacekeeping, and counter-drug missions, have been retired. The Spartan, which looks like a toned-down, twin-engine version of the C-130, gave U.S. military troops a unique, short-take-off-and-landing capability, providing access to airstrips otherwise unreachable by fixed-wing aircraft. The final Spartans were flown from Panama to the desert storage facility at Davis-Monthan AFB, Arizona, in late January, marking both the end of an era in Panama and the first visible sign of the impending closure of Howard AFB. The C-27s were frequently heard working Albrook Global on USAF GHFS HF frequencies using the callsign ***"SHARK,"*** which was used by other 310th aircraft as well. The 310th ALS has also deactivated. Officials from the 310th cased the unit flag, symbolizing the unit's deactivation and culminating more than 55 years of U.S. Air Force service in February. The ceremony also marked the departure of the 24th Expeditionary Airlift Squadron, which will continue its mission of supporting U.S. Southern Command at a yet-to-be-determined location.

In other USAF changes, at Duke Field, Florida, the 8th Special Operations Squadron will move to Duke Field from Hurlburt Field with four MC-130s and 278 military and two civilian positions. AFRC's 5th SOS will move to Eglin AFB, Florida. Both units will continue to report to the 919th Special Operations Wing at Duke Field. At Eglin AFB, Air Force Special Operations Command's 9th SOS will lose four MC-130P aircraft. The 5th SOS will move to Eglin from Duke Field. The 8th SOS will also lose one MC-130E and move from Hurlburt Field to Duke Field with four MC-130Es. At Dobbins ARB, Georgia, the 94th Airlift Wing will convert from eight primary aircraft authorized C-130 tactical airlift mission to an eight PAA C-130H training mission. At Dyess AFB, the 13th Bomb Squadron (BS) will activate with six B-1B aircraft as a flying training unit. At Moffett Federal Airfield, California, the Air National Guard's 129th Rescue Wing will convert its four HC-130P to four MC-130P aircraft while maintaining its current mission.

Digital News

VIP, Perth Radio, Australia, part of the Globe Network, has ceased use of maritime digital Ch. 2206 and is now using Ch. 2214 22383.0/22291.0 kHz. John Doe, UK, notes that FUB, the French Navy, Paris, is again using an "anonymous" test tape in that the callsign is not used, as follows —"testing testing testing testing testing testing testing testing, ryryryryryryryryryryryryryryryryryryryryryryryryryryryryryryryry, voyez le brick geant que j'examune pres du grand wharf, sgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsgsg, 1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6.7.8.9.0.1.2.3.4.5.6.7.8.9.0, testing testing testing testing testing testing testing testing testing." The error in the "brick" sentence, "examune" instead of "examine," is their mistake, not John's, and if they don't correct it, this should help to identify this station.

Reader Mail

We've got more new contributors to welcome this month. Todd Shoemaker in St. Louis, Missouri, uses a Yaesu FRG-100 connected to an MFJ-959B antenna tuner/pre-amp and an Autek Research QF-1A audio filter. All of that is connected to two 60-foot dipoles; one running E/W and one running N/S. He uses a Pentium 133 for decoding ACARS, DTMF, CTCSS, SSTV, HF-Fax, CW, RTTY, and satellite decoding. Todd also does a lot of scanning with a Bearcat BC890XLT, a PRO-39, a PRO-44, a PRO-508, and a Bearcat 800XLT.

Norm Osborne, in Las Cruces, New Mexico, (AA7NP) was briefly a ship radio officer. Since GMDSS became the law and created the stampede of stations dropping Morse, he has been listening to the HF marine calling and working frequencies. Norm uses a Ten-Tec SP325 for CW and SITOR, with a ham Hy-Gain 40-20-15-10 vertical mounted on the roof with four sets of radials for each ham band. For decoding SITOR, etc., he uses a 486 clone with HAMCOMM 3.1 and a home brew interface.

Chris Steele in Andrews, South Carolina, is just getting started in shortwave utility listening using a RS DX-390 with a Antron 99 antenna about 70 feet in the air. Chris sent his first logs in to share this month.

Last, but not least, is John Kasupski in upper New York. John uses a DX-394, ATS-803a, PRO-2045, PRO-50, PRO-2026, and a BC210 in his shack.

Andrea Borgnino, Italy, sent a picture of the HF antenna, which is atop the Rome headquarters of "Salini Costruttori," mentioned in May's logs. It is a 12-element log periodic antenna beaming

towards Africa. The company makes use of 20584.0 kHz for voice and Sitor-A/ARQ digital traffic to its hydroelectric construction sites. Andrea enjoys locating various HF antenna sites and photographing them and reports there is an abundance in the Rome area. He promises to send some other pictures soon. Lupo Alberto, also in Italy, reports on the Italian 11272.0 net logged by many recently. Lupo notes 95% of transmissions are radio checks, with callsigns IEY54, 55, 56, and 57 noted. Other transmissions are brief messages dealing in digital coordination. After January 23rd, the IEY prefix was replaced with IGY.

Raymond Prestridge of Texas shares several utility QSLs he has received recently. Ray reports a verification letter in Spanish from ANTEL, Uruguay for CWA, Cerritos Radio, signed by Ing. Hector Sperduto Melillo. The address is ANTEL Administration Nacional de Telecomunicaciones, C.P. 11200, Montevideo, Uruguay; a verification letter in Portuguese from Angola Telecom for D3E51, Luanda Radio, with signature unreadable, but the signer was "Supervisor, Luandaradio." No return address on the envelope or letter but he used C.P. 625, Luanda, Angola; a verification certificate from NAVCOMMSTA AUCKLAND for ZLO, New Zealand Navy. The address is: HMNZS Philomel HMNZ Naval Base Auckland, New Zealand; a QSL card and information booklet from TeleDanmark for OXZ, Lyngby Radio. Address is TeleDanmark Lyngby Radio Bagsvaerd Mollevej 3 DK 2800 Lyngby, Denmark. On the back of the QSL card, they advise that they ceased CW operation 0000 UTC 01 February on both 500 kHz and HF. Patrice Privat, France, reports he has added a RadioShack DX-394 to his shack, which has increased his logs. You will see his most recent catches this month.

Sean Ingram, who made some first time logs in the February 1999 column, checks back in. Sean's located in Virginia. Alan Gale reports received a QSL from Lyngby Radio for their 500-kHz close down broadcast. The verification signer noted that there were about 130 people present and they ended up there until 0300. He also said that over the past few months they had dropped to only five or 10 CW messages per day, though there are still 80 people employed there. Alan promises to send a copy of the QSL soon. They also sent a booklet entitled *Lyngby Radio Calling* and a transcript of their final message. The address used by the station was: TELE Danmark, Servicetelefonen, Lyngby Radio, Bagsvaerd Mollevej 3, 2800 Lyngby, Denmark. At the suggestion of several readers, I will try adding the contributors abbreviated location in addition to their initials, like (RB-OH). This means you won't have to flip to the back page to see where a log was heard. Now, on with the show.

UTE Loggings SSB/ CW/DIGITAL

70: Decca stations in N and W Europe monitored at 1505 w/CW Nav. signals (freqs. 70-72 kHz). (AB-NLD)
75: HGB, Observatoire Neuchatel, SUI at 1452 w/CW time signals. (AB-NLD)
120.9: GYA, Royal Navy in RTTY 75/85 NAWS msg. (JD-UK)
123.7: DCF42, IFaG Potsdam (txm Mainflingen), GER at 1454 in MSK 300bd DGPS data. (AB-NLD)
144: Datatrak stations in Holland at 1506, vehicle tracking data (freqs 144-145 kHz). (AB-NLD)
236: CN, Cochran, Ontario, CAN at 0305. (MS-NJ)
288: HH, NDB Hoek van Holland, HOL at 1332. (AB-NLD)
303: YPP, Parent, PQ, CAN at 0318. (MS-NJ)
327: MVC, NDB Merveille, FRA monitored at 1314. (AB-NLD)
329: YHN, Hornepayne, ON, CAN monitored at 0320. (MS-NJ)
332: YFM, Le Grande, PQ, CAN monitored at 0329. (MS-NJ)
336.5: NIK, NDB Nicky, BEL monitored at 1250. (AB-NLD)
350: ROT, NDB Rotterdam, HOL heard at 1249. (AB-NLD)
387: ING, NDB St. Inglevert, FRA at 1247. (AB-NLD)
400: PIE, Bucaramanga, COL monitored at 0400. (MS-NJ)
406.5: BOT, NDB Bottrop, GER heard at 1320. (AB-NLD)
417: EK, Worcester, MA at 0405. (MS-NJ)
450: PPA, Porta Plata, Dom. Rep monitored at 0430. (MS-NJ)
1692: SPC, Gdynia Radio, POL at 2134 in USB w/nav wngs in EE. (HOOD-UK).
2182: Halifax CG Radio, CAN at 0108 in USB, w/vsl c/s COJA, (Cuban vsl Rio Damuji) switching to 2598. (RP-MD)
2474: PBC, Dutch Navy Goree at 1920 in 75 bd figures group w/ID PBC. (PP-FR)
2625: DHJ59, German Navy, Wilhelmshaven; at 2230 in USB, wkg "XV" who was using USB voice and three-channel FDM RTTY (150 bd channels spaced 680 Hz apart). (JD-UK)
2670: NMG, USCG Group New Orleans at 1238 w/MIB. At 1220, NOQ, USCG Group Mobile also w/MIB. (DW-TX)
2762: Kinloss Rescue, Scotland in USB at 2145 wkg Rescue 177. (AG-UK)

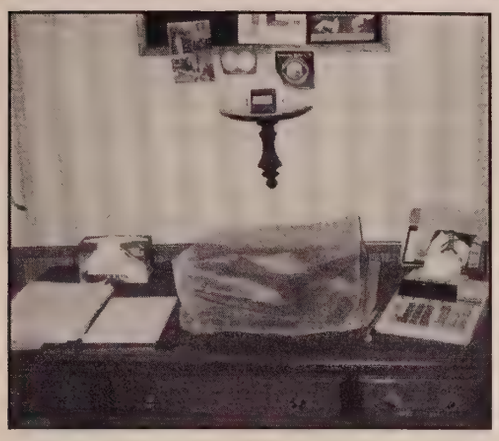
Shack of Chris Halinar, New York, showing his DX-394, RS 2026, Bearcat XLT200, MFJ 462B Multi-reader, and amplified speakers. Not shown, Chris says, is the coffeepot for those long nights of DX.

2840.7: Cuxhaven Coastguard, GER at 1648 w/ARQ msg in GG re lifebelt picked up in North Sea. (HOOD-UK).
3137: Unid stn in USB w/ALE pulses monitored at 0541. (JM-KY)
3192: At 0939, ZERO ROMEO INDIA wkg Navy Auckland (RNZN) w/test cnt, tfc inquiry. (NJ-NZ)
3217: "P25U" at 2015 in CW wkg "XVP1" (unheard) w/5L groups including Cyrillic letters. (JD-UK)
3345: Kinloss Rescue, Scotland at 1908 in USB w/rdo ck w/RESCUE 137. (AG-UK)
3782: CTP, NATO Lisbon in RTTY 75/425 at 2100. (PP-FR)
3842.8: Unid spook at 1142, just caught end of YL/EE w/numbers "5 9" into open carrier w/50 Hz hum. Didn't sound like SVR Cuban voice. Pulled plug on tx at 1150. (AWH-FL)
4002: YRR2, Bucharest Meteo, ROU at 0000 in RTTY 50bd Synops. (AB-NLD)
4003: AAR4QL, U.S. Army MARS in LSB net at 0357. (JM-KY)
4030: ARIA Control wkg ARIA 1 re: Delta II launch data comms monitored at 0602 in USB, ABNORMAL 20 and ASHLEY 12 on freq also. (JJ-CA)
4146: Unid stn wkg ship WBS7689 at 0207 in USB, ship passes posn, wx and supplies needed when back in port, was in Gulf of Mexico. (CS-SC) *(WBS7689 is the Gulf Fleet Marine Tug Gulf Duke, prob wkg "KZR Harvey," Gulf Fleet Marine, Harvey, Louisiana. — Ed)*
4198: UIYL, TKH Dvina at1848 in CW clg UHP5 for svc msg. (HOOD-UK).
4227: IGJ42, Italian Navy Augusta, ITA at 0044 in RTTY 100bd CARB. (AB-NLD)
4256: WLO Mobile Radio at 2335 in FEC w/ann re six dedicated channels now for Internet access. (FH-FL)
4295: FUE, French Navy Brest w/testing in RTTY 75/850 at 0145. (PP-FR)

Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identification/led/location
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tfc	Traffic
USB	Upper Sideband mode
w/	With
wx	Weather report/forecast
YL	Female operator
4F	4-figure coded groups (i.e. 5739)
5F	5-figure coded groups
5L	5-letter coded groups (i.e. IGRXJ)

4325: Channel marker R, Russian Navy Ustinov, RUS monitored at 0019 w/CW marker. (AB-NLD)
4325.3: ZRH, Fisantekraal Naval, RSA at 0330 in CW w/ marker. (RP2-TX)
4336.5: WNU, Slidell Radio at 1100 in ARQ to ships, new here. (FH-FL)
4340: XSQ, Guangzhou Radio, CHN at 1548 w/CW ID marker. (HOOD-UK)
4346: 9AR, Reijka Radio, HRV at 0019 w/CW VVV marker. (AB-NLD)
4372: K9Z, *USS Ramage* (DDG-61) at 0347 in USB wkg 6NX, unid, possible *USS Kearsarge* (LHD 3). Helo enrt to K9Z to pick up probable stroke victim. Eventual destination is Camp Lejeune. (DW-TX)
4393: OHG, Helsinki Radio, FIN at 0808 in USB wkg UDPI, TKH Starocherkask for pp (is ex Volgo-Balt 222). (HOOD-UK)
4417: Auckland Cruising, NZ at 0528 in USB w/posn reports from the boats taking part in the around New Zealand race. (IJ-NZ)
4426: At 0856, unid marine and weather forecast/synopsis for Caribbean and Gulf of Mexico. (DG-MI)
4516.2: USN/USMC MARS PACTOR at 0100. (JM-KY)
4535: Pactronics or Patronics Radio, NZ at 2010 in USB w/boating comms. (IJ-NZ)
4543: Golf Kilo (G16), GER at 2230 in USB w/5FG by YL/GG. (AB-NLD)
4583: At 0635, DDK2 Hamburg Meteo, GER in RTTY 75/425 w/wx from many ground stations in Sweden and France. (PP-FR)
4585: SANDLAPPER 4 (SC Civil Air Patrol) at 0104 in USB, w/SANDLAPPER 47, SANDLAPPER 99, and KITTY HAWK 92 (NC CAP) net check in. (RP-MD)
4601.5: FDY, French AF, Orleans, FRA monitored at 2220 in RTTY 50/340 usual test tape. (JD-UK)
4604: RED ROBIN 78 (Michigan CAP) at 0203 in USB w/RED ROBIN 132 re net check-in. (RP-MD)
4628.2: Unid French Military, FRA presumed, at 0135 in ARQ-E 184.5/400 idle, XXL/XZL pair accounted for, so assume domestic link like UAF or similar. Has been on for several nights. Others same mode have been noted on 4832 and 5399. No traffic heard on any. (AWH-FL)
4635: 8DE, Department of School Education, Dubbo, AUS monitored at 2223 in USB w/ lesson featuring excerpts from "Charlotte's Web." (SD-AUS)
4637.5: KLA518, Tidewater Marine, Amelia, LA in USB at 0206. (JM-KY)
4645.1: At 0907, numerous tfc between stns KILO and CHARLIE FOXTROT. (DG-MI) CHARLIE FOXTROT at 0647 wkg LIMA, KILO, and HOTEL in link-11 coordination net, app related to Pacific Fleet Y2K Test battlegroup off S. Calif. (Ed.-OH) GOLF wkg SIERRA re: when back to HULA DANCER need to get antenna fixed at 0604. (JJ-CA) All in USB.
4724: V6G monitored at 0150 wkg Lajes w/pp NCTAMSLANT re status of net #1 communications. NCTAMSLANT says they are working. GORDO 11 (E-4B "Front End" c/s) at 0305 clg Thule then w/Mainsail. Both in USB. (RP-MD)
4730: FUE, Fr Navy Brest, FRA at 2215 in RTTY 100/850 "AGOSTA de FUE RYs 1-0 int ZBZ K." (JD-UK)
4739: RED CLAW 714 (P-3) w/0GY at 0105 in USB passing Spare Group report. (RP-MD)
4742: ARCHITECT passing meteo to UNID at 0127 in USB, 9LT req meteo for LICZ\LICI from ARCHITECT at 0211. GIBRALTOR calling ARCHITECT for radio check at 0255. All in USB. (MF-OH)
4832: DFZG MFA Belgrade Yugoslavia at 1903 in RTTY 75/500 w/FOR ALL. (IJ-NZ)
4873.5: USAF MARS station AFA1DA in FEC at 0146. (JM-KY)
4939: ALPHA FOXTROT and GOLF Australian Military Tracking net at 1924 in USB w/tracking comms. (IJ-NZ)
5049: Portuguese Police, Barreiro, POR at 1858 in ARQ 100bd Msgs about stolen cars. (AB-NLD)
5080: Unid U.S. Navy at1241 in USB, another one here incl LF, others, co-ch Cuban net incl CMH2. (AWH-FL)
5081.5: Unid U.S. Navy at 1240, M9H, W, V7, others, "XAE" ment'd so prob link coordination net. (AWH-FL)
5123: At 0255, ZKG21 wkg ZKG2002 w/chat re bush tracks in USB, DOC channel 2. (NJ-NZ) *(ZKG21 is Department of Conservation, Auckland, New Zealand — Ed.)*
5190: France? Unid stn at 2330 in ARQ-E3 96/400 idle, beta idle, no tfc. Maybe yet another UAF type link changing modes again? Don't see this mode/rate used recently except on the Antarctic circuits and Martinique/Tahiti link. Could be France to Kerguelen maybe. Not heard since. (AWH-FL)
5268: HEP5, Kantonspolizei Zuerich, SUI at 1855 w/CW VVV DE HEP5. (AB-NLD)
5277: PANTHER clg 51 ALPHA, w/nothing heard at 0137. 51 ALPHA w/posn rpt and req that PANTHER secure there guard. at 0145. (MF-OH) PANTHER (DEA Bahamas) at 0606 w/07C (probably CG 6507, H-65A, Corpus Christi) and 51A (probably CG 6551, H-65A Corpus Christi) coordinating OPBAT patrol. 07C was to contact callsign "Police Boat" on marine ch. 12. At 0610, Panther req that 07C illuminate the go-fast boat so squad cars on land can see its location. (RP-MD) Both in USB.
5301: CHH700 w/msg for CHN763A at 2338, 709 req operational status 709A. 709 req 50 baud data check, 700R unable to transmit at that rate. At 0023, 709 passing callsign TORONTO MILITARY, 700B req procedures for Hostile Civilians, told to contact local PD. (MF-OH) *(Canadian Military Y2K disaster exercise — Ed.)*
5376: German Lady (G07), RUS at 2110 in AM w/"742 742 742 1 achtung 973 60 973 60 5FG 000 000 ende." (AB-NLD)
5377: VICTOR TANGO and LIMA TANGO NOVEMBER, Army net North Island, NZ at 1915 in USB w/logistical msgs. (IJ-NZ)
5430.5: Spook stn P7X at 0205 in CW, surprised to hear hand-keyed tfc, repeated "VVV VVV QRA P7X 050200Z MA99 GR 21 BT IYBSG XPSVN UBNOU VWSHR . . . BT AR" a couple of times, then moved up to 5431.5 and sent same msg a couple of additional times. Noted later in evening back to running normal autokey "training" routine. (AWH-FL).
5436.5: Possible Telecom phone link at 1046 in USB w/OM talking to YL about meeting at the airport, but line terminated midway through with engaged signal. Both had Scottish accents. (SD-AUS)
5442.2: HEC, Bern Radio at 2200 in FEC w/tfc list. (HOOD-UK).
5467: ZLSW, Kahurangi Mountain Radio and Scub Gully, South Island, NZ monitored at 2010 in USB, two OMs w/chat, one mentioned when he was on Stewart Island he couldn't get out on his portable HF rig due to battery problems. (IJ-NZ)
5541: Stockholm Air Radio monitored at 1710 in USB wkg C-FIDO then QSY to 8930 to repeat mesg for diversion details to Luton (UK). (HOOD-UK).
5589: El Al LDOC, OM in Hebrew at 0213 in USB w/Hebrew a/c tfc. (RP-MD)
5658: AUA52 clg Kabul Air Radio at 2136 no joy. Karachi Air at 1900 wkg Singapore 319. Bombay Air at 2233 wkg Austrian 3331 for Selcal AC-BR. (HOOD-UK).
5670: Tanai Air at 2212 in USB wkg Singapore 411. (HOOD-UK).
5680: Koksidje Rescue, BEL at 1059 wkg Belgian Air Force 90. DREI (FGS Lindau M-1072) at 1106 in r/chk w/Glucksburg Rescue, GER. PC 056 at 1220 in r/chk w/Glucksburg; SRG 08 at 1644 in r/chk w/Kinloss Rescue, SCOT, Sea King on air test from St. Mawgan. DRBH (FGS S-48 at 1457 in r/chk w/ Glucksburg. Bodo Radio, NOR at 1447 wkg Saver 35. DRFL (FGS Seigburg) at 1434 in r/chk w/Glucksburg. Rescue Dolphin 16 at 2101 wkg Kinloss. Foxtrot Eight Uniform (believed to be Royal Navy ship which Dolphin 16 helo was based on) at 2227 wkg Kinloss. Stavanger Rescue, NOR at 1324 wkg Saver 10. Westland One at 1719 in r/chk w/ Kinloss, one of the brand new Merlin helos out of the Westland factory at Yeovil on test flight. (AG-UK) SAR Greymouth and Methven, South Island, NZ at 2115 in USB



Neat shack of longtime reader Ralph "Lars" Larson in Minnesota.

w/SAR exercise. (IJ-NZ) Churchill Radio, CAN at 0030 in USB, w/unid station coord sharing of info w/Winnepeg Radio re a/c's posn. (RP-MD) All in USB.

5684: Unid military net at 1422 in USB w/ WHISKEY BRAVO wkg another stn, both OMs had accents where 'W' was pronounced 'V'. (SD-AUS)

5687: At 0344, IROQUOIS 03 wkg Airforce Auckland, NZ in USB w/msg from base ops. (NJ-NZ)

5696: NOJ, USCG COMSTA Kodiak, AK at 0401 wkg 1707: HC-130H7. (DW-TX) 33 CHARLIE securing guard w/CAMSLANT, 33C req CAMSLANT relay to PANTHER. (MF-OH) YANKEE 2 SIERRA at 1241 w/CAMSLANT Chesapeake adv to convey course and speed of vessel to cutter and requested to remain on scene as long as possible, advise course, and speed on departure. (SD-AUS) CAMSLANT Chesapeake wkg "Rescue 6031" ref collision between the *USS Arthur W. Radford and civilian vsl M/V Saudi Riyadh*. (TS-KS) All in USB.

5699: RAF Buchan and W4L in radar tracking exercise in USB all day. (JD-UK)

5714: ARCHITECT: RAF Upavon, UK monitored at 2100 in USB w/Celebrity broadcast. (AB-NLD)

5841: 51 ALPHA att posn rpt w/PANTHER at 0135 in USB, PANTHER req switch to ALPHA. (MF-OH)

5887.5: IMB2, Rome Meteo, ITY in RTTY 50/425 wx for Oradea in Romania monitored at 1600. (PP-FR)

6206: VKST, vsl Mermaid Raider at 0721 in USB (QSX 6507) clg Sydney Radio, VIS, w/posn 33-44S/151-46E and adv he is a survey vsl enrt to Norfolk Is. via Lord Howe Is. their best speed is 10kts, also requested posn of stricken yacht *Armeni 55*. (SD-AUS)

6215: A3CS4, vsl *Sitka* heard at 0717 clg Taupo Maritime w/posn 31-03S/158-05E, 385nm from last posn of yacht *Armeni 55* and advises them that the tanker *PACIFIC ROVER*, 3TQU, will call w/his posn. Noumea Radio at 0810, FF ann re-commencement of wx and tfc info on working frequencies. Both in USB. (SD-AUS)

6242: At 0100 on, tfc from the JTFEX 99-1 exercise group. (JK-NY) BRAVO FOXTROT at 0455 wkg GULF re track info in link-11 coordination net related to *USS Theodore Roosevelt* (CVN-71) battlegroup with other countries as well in JTFEX 99-1. (Ed.-OH) Both in USB.

6316.5: 7TK, Boufarik Radio at 0732 in ARQ msg to 7TGH: Ramdane Abane (83228 DWT LPG carrier). (HOOD-UK).

6334: WCC, Chatham Radio in ARQ, new at 1155. (FH-FL)

6358: PBC, Dutch Navy, Goeree Island Naval, HOL at 0100 in RTTY 75/850. (RP2-TX)

6380: UCW4, St. Petersburg Radio, RUS at 0908 w/CW crew TGs to UFFE: TKH Seatamar (is ex Sormovskiy 9, ERJU). (HOOD-UK).

6418: VTP, Indian Navy Vishakhapatnam, IND at 1930 in CW w/VVV VTP4/5/6. (IJ-NZ)

6529: Unid CW net (Russian?), 2230–0030, most weak, hand-keyed, cyrillic chars, 3–4 stations spread out around +/- 1 khz range, one kept repeating OBU occ, but not sure if c/s or not, another night at 2315. (AWH-FL)

6535: BA 2245 w/Dakar at 0632 in USB then BA 2266 at 0647, advised to call Canariason on 8861; Air Afrique 520 w/Dakar at 2243 adv to tune to Sal ATC 128.30 VHF.(PP-FR)

6604: At 2038, NY Volmet in USB w/wx report. (DG-MI)

6659: Unid in USB in Caribbean SS, prob fishermen, 0100-0200. (X-S.US)

6671.5: Unid in USB, Mexican, prob fishermen at 0100. (X-S.US)

6683: NAVY 49676 at 0335 inbound NAS North Is., wkg Andrews VIP. SAM 204, wkg Andrews VIP for pps to Mildenhall re: 1005z wx and European DSN. I have as RAF Uxbridge. 0530z. Both in USB. (JJ-CA)

6693: ICM (U.S. accent), 5YB and T2G (Italian accents). Presumed USN net at 1945 w/negative contact via RATT. (IJ-NZ) ICC at 0306 clg ICG no joy; ICM wkg NOV.ZERO GULF w/track info, net here several days app related to *USS Theodore Roosevelt* (CVN-71) battlegroup w/other countries as well in JTFEX 99-1. (Ed.-OH)

6693.5: Probable Dutch military activity in LSB. (PP-FR)

6694: LIMA at 0138 in USB w/OSCAR WHISKEY (net control) w/exercise tracking data. Passes tracks on Jaguar's chopper and references to CORVETTE and STINGRAY. (RP-MD)

6730: Andrews w/test counts in USB and then into data at 0310. (JJ-CA)

6744.9: RBOC, unid in RTTY 50/500 monitored at 1725 clg RBOO, RBOR, RBOS w/"#RK?" (yes, hash RK, not QRK, which suggests a Russian machine), also a few words of Russian. (JD-UK)

6761: GOLD 100, 105 w/LOBSTER FLIGHT and RHINO FLIGHT also on Coronet East UHF 314.5, 396.2, and 378.2 at 0222. GOLD 11 clg GOLD 13 at 0305. Both in USB. (MF-OH)

6780: CIA Counting station at 2018 in USB, YL w/numbers. (IJ-NZ)

6801.5: Unid, Russia? at 2200 on throughout evening, 48/250 FSK reversals beginning top of hour here and //5305.5, then both abruptly off at minute20. Sounds like REA4, but not // 3476 which was heard staying on after 6801.5/5305.5 pulled the plug. Back again next hour, repeating cycle for a few hours. Did note 5305.5 on once at minute :50. No traffic of any sort noted yet. (AWH-FL)

6815.6: SHARK 26 clg HUNTER 01 w/nothing heard at 2205. (MF-OH) GANTSEC clg unid in "red" and ANDVT, on top of an apparent audio feedback source at 0128. (JJ-CA) Both in USB.

6825: FAV22, French Army Mons-Valerien, FRA monitored at 1010 w/CW Morse exercises. (AB-NLD)

6826: Eurofly in USB clg dispatch in Milano in Italian language via Stockholm.(PP-FR)

6908.3: Unid in ARQ-E3 200/400 very strong at 2322 idle to 0212 then ZCZC VHC and heavy garble casting doubt on whether VHC was also garble or for real. (FH-FL)

6964: RFLIGA Kourou in ARQ-E 192/170 (Circuit GAG) to RFLIG w/FF msg monitored at 2314. (FH-FL)

6975.1: 6VU38, Dakar in ARQ-E 72/370 (circuit DPA) idle to Nouadhibau at 2300, was 48 baud. (FH-FL)

7041: "HKJU" unid presumed CIS at1800 w/CW 5LG incl Cyrillic letters to "7NWV."(JD-UK)

7337: Lincolnshire Poacher No stn at 2010 in USB w/YL w/numbers. (IJ-NZ)

7500: ECHO-3-MIKE wkg ECHO-3-GOLF monitored at 0026 in USB w/comms setup for upcoming "exercise." B-3-W and E-4-R also on freq. (JJ-CA)

7505.5: FDY, Fr AF, Orleans, FRA at 1445 in RTTY 50/340 test tape. (JD-UK)

7893.6: DARKSTAR clg CHARLIE WHISKY monitored at 2047 to report they are on station. SN passing hostile track to BW at 0108; SN clg BW, req ST be put "in the window" due to hostiles proximity. (MF-OH) BRAVO WHISKEY at 0335 wkg unit re DELTA just attacked by sub-surface contact, request RALEIGH 44 close them and assist. *USS Theodore Roosevelt* (CVN-71) battlegroup with other countries as well in JTFEX 99-1. (Ed.-OH)

7978: Australian outpost net at 0705 in USB w/two YLs discussing local floods, no callsigns mentioned so unable to pinpoint actual user due to high number of users licensed to that frequency. (SD-AUS)

8013: RBL88, unid Russian military at 1240 in CW w/QSO w/unheard stn. (JD-UK)

8014: COB36 Bahia Havana, Cuba wkg m/v Tanya at 1350 in USB, imm QSY 12369, then down to 6877. (AWH-FL)

8016.7: Egyptian Embassy, Washington at 2030 in ARQ wkg MFA Cairo, 5L "YYMVG"-series cipher messages, not ordinary "SYNCB"-series cipher. Prob relates to Jordan situation. Hrd 2030-2130, 1.5 hours later than normal schedule. (X-S.US)

8030: English Man (E06), RUS at 1500 in AM w/924 (R4) 605 605 81 81 5FG ends 0000. (AB-NLD)

8036: SPAR 06 wkg Andrews VIP for a sig-

nal check at 0250 in USB, also found on 8053, 9120, and 11053 at various times. (JJ-CA)
8080: CIA Counting station at 0545 in USB w/YL w/numbers. (IJ-NZ)
8122: *HMAS Benalla*, Royal Australian Navy Survey Craft (A04) at 1236 wkg Canberra Control w/tfc. *HMAS Betano*, Landing Craft L133 at 1217 wkg same w/2 Immediate and 1 Priority msgs. *HMAS Melbourne*, Adelaide-class Frigate 05, at 1224 wkg Darwin Control w/tfc. (DW-TX)
8152: Unid maritime stations with check-ins and traffic relay in USB at 1337. (JM-KY)
8174.6: Tracking net active, LK, LW, and others. (JM-KY) BRAVO WHISKY tracking net at 0229. (MF-OH) LIMA WHISKEY at 0128 wkg LIMA CHARLIE, later SN wkg INDIA re track ID. *USS Theodore Roosevelt* (CVN-71) battlegroup with other countries as well in JTFEX 99-1. (Ed.-OH) All in USB.
8176: VIS, Sydney Radio, AUS at 0720 in USB wkg vsl Island Trader, VNBZ, on 0700 sked. (SD-AUS)
8207: EPCU, *M/V Iran Kolahdooz* at 1704 in USB clg Scheveningen Radio — no joy (nobody told this guy they are now closed). (HOOD-UK).
8272: Unid OM/EE in USB monitored at 0634 w/nx bulletins from the Philippines. Voice version of news bulletins usually sent via Sitor-B. (TS-KS)
8300: "New Star" YL/CC 4F msg in AM at 1330. (TS-KS)
8311: Unid at 0440 in USB w/ANDVT and weak voice. (DW-TX)
8361: 3FWE5, M/T Irini at 0834 in CW w/msg to Brazil via KPH. (HOOD-UK).
8389: ELRP9: m/v Falcon Carrier at 1439 in ARQ w/test msg. (AB-NLD)
8402.5: UEZQ, Ozherelye (TSM-8358) at 0756 in RTTY 50/170 admin from Km Kolesnichenko to UIW. (HOOD-UK).
8416.5: NMC, USCG Point Reyes, CA in FEC monitored at 1340 w/wx Marine Forecast and Synopsis. (FH-FL)
8419: VlP37, Perth, AUS w/ARQ Ready Signal at 1145, 2230. (FH-FL)
8421.5: VRX, Hong Kong w/ARQ Ready Signal at 1135. (FH-FL)
8437: 4XZ, Israeli Navy, Haifa, ISR at 1942 in CW w/VVV 4XZ. (IJ-NZ)
8444.5: KFS, Palo Alto Radio, CA at 0237 in CW w/CQ tape. (DW-TX)
8454: UIW, Kaliningrad Radio, RUS at 1629 in RTTY 50bd Nav wngs. (AB-NLD)
8459: LSD836, Globe Wireless Buenos Aires, ARG at 0246 in ARQ w/free idle and CW id. (DW-TX)
8510: J2A8, Jibuti Radio, DJI at 1935 in CW w/DE J2A8. (IJ-NZ)
8565: D3E51, Luanda Radio, ANG at 0325 in CW w/CQ tape. (DW-TX)
8584: VRX36, Cape A'guiliar Radio, CHN at 1145 in CW w/marker. (RP2-TX)
8589: HPP, Intelmar Radio, PAN at 0332 in CW w/CQ tape. (DW-TX)
8590: VTK, Tuticorin Naval Radio, IND at 1617 w/CW ID. (HOOD-UK).
8601.3: ZLO, Waiurou Naval, NZL at 1345 in CW w/marker. (RP2-TX)
8658: ASK, Karachi Radio at 1628 w/CW ID and QSW for tfc list as 484/8658/13024.5. (HOOD-UK).
8682: EAD, Madrid Radio, SPA at 0337 in CW w/calltape. (DW-TX)
8686: PKF, Makassar Radio, IND at 1215 in CW w/marker. (RP2-TX)
8764: UIW, Kaliningrad Radio, RUS at 0935 in USB, YL giving ID in RR answering unid vsl. (HOOD-UK).
8776: CHURCH MAN w/EAM traffic (XODGPJ . . .) at 0015. Unids w/Link-11 signals e.g. 0700 noted all week long. (JJ-CA)
8825: New York Radio, NY at 2259 wkg several a/c over Atlantic giving posn and estimates to waypoints. (CS-SC) At 0226, New York wkg Skyway029 re clearance, climb, and maintain 340; at 0227 wkg Windsor2921, Cross 45W at 370; at 0228 w/Santa Maria re info on Condor105. (DG-MI) All in USB.
8861: At 0232, multiple atc's in SS (?). (DG-MI) ?-504 at 0408 wkg Dakar ATCC w/posn and ETA. (DW-TX) Both in USB.
8903: At 1800, in USB Njamena and Kinshasa clear on wkg a/c. (PP-FR)
8939: Moscow Radio at 0918 in USB, YL giving ID as Moskva Meteo after wx rpts in RR. (HOOD-UK).
8968: At 2212, in USB SIDECAR clg R3T no joy. (JK-NY)
8971: At 1923, FIDDLE clg CHARLIE 26 no joy. (JK-NY) Unid 24 passing spare group message to Y2R at 2104, REDCLAW 6 ALPHA passing spare group message to Y2R at 2115. (MF-OH) Both in USB.
8974: RAAF Townsville QLD and AUSSIE 077, AUS at 0612 w/VIP comms. Organizing transport for the Speaker of the House, from RAAF Fairbairn ACT to Adelaide SA on GIBSON 069 and to let his wife know. (IJ-NZ) Army Sydney at 0812 clg Air Force Townsville w/series of radio checks. (SD-AUS) Both in USB.
8982: IMC at 2028 in USB, w/U9L confirming receipt of three-ltr group encoded message. (RP-MD)
8983: At 2003, CG 2122 wkg CAMSLANT; at 2159 CG 1720 departing CGAS Clearwater, CAMSLANT gave guard freqs 8983 Primary, 5696 secondary. A/C is an HC130H7 out of Clearwater CGAS. Both in USB. (JK-NY)
8992: At 1928, unid stn w/30-char EAM, did not catch ID of station that was sending it. (JK-NY) Thule w/pp for NAVY JW450 to Rosy Roads CP at 2230. (MF-OH) RECKLESS at 1821 clg mainsail w/test count simulcast on 11175. (SD-AUS) TANGO-5-VICTOR at 2046 wkg McClellan for pp to HABITAT re: on the deck at 2040z. (JJ-CA) All in USB.
8997: UNCLOUDED at 1102 in USB clg 837, advising a/c overhead now but 837 had him broken and unreadable. (SD-AUS)
9016: TENACITY clg HOLDFAST on Z175 at 0250 in USB. (MF-OH)
9025: RNZAF, Auckland, NZ wkg AUSSIE RESCUE 215 at 2130 in USB searching for the missing yacht *Armeni 55*. Relaying search info to Wellington RCC. (IJ-NZ)
9031: ASCOT 4583 monitored at 1335 in USB wkg ARCHITECT for Selcal ck AK-CH. (HOOD-UK)
9115: Spanish Lady (V2) at 0601 in AM, numbers station with headers 666 01 and 584 02. (SD-AUS)
9120: V8C at 2056 clg Y1C w/no results. Closes by saying " This concludes the test." (RP-MD) NAVY 50496, DV-2, inbound Mountain Home AFB, wkg Andrews VIP at 220 for pp re: 0010z wx. SAM 682 at 2329 wkg Andrews VIP for pp re: a 0050z ETA. (JJ-CA) All in USB.
9130: Mossad (E10) at 1401 in USB, id EZI, grp 54 commencing OCOUU . . . (SD-AUS)
9194: Russian Air Defense in CW w/time pulses at 2130. (X-S.US)
9320: SAM 682 at 0127 in USB inbound Andrews, wkg Andrews VIP for pp re security police needed upon landing to handle "the four guys on the a/c." (Also on 6993) (JJ-CA)
9914: Unid FAA ALE monitored at 1453 in USB. (JM-KY)
9996: RWM, TSS Moscow, RUS at 1449 w/CW Time signals. (AB-NLD)
10018: Lauda 811 clg Karachi ATC at 2150 in USB no joy, the bulk of traffic was on 5658. (PP-FR)
10051: Gander Radio, CAN at 2125 in USB w/wx for various cities. (CS-SC)
10057: At 0324, San Francisco in USB wkg various a/c, adv one of Honolulu Center at 127.6. (DG-MI)
10072: At 2052, unid LDOC wkf a/c re split is different between engines, EGT probe problem. NT speed left 95.3 right 95.4, strong signals. (NJ-NZ)
10125: CIO2, Mossad, Israel, hrd in USB monitored at 1345. This is a WARC amateur band. Haven't hrd this freq for a long time. Welcome back! (TY-JA)
10255: Unid FAPSI station in RTTY 75/500 circuit ID 30088. (JD-UK)
10332: DFZG MFA Belgrade, YUG at 1935 in RTTY 75/500 w/encryption. (IJ-NZ)
10362.5: UNIFORM JULIET (presumed FUJ FN Noumea New Caledonia), CHARLIE JULIET and VICTOR UNIFORM, appears to be French Navy net in the South Pacific at 0450 in USB w/comms in FF. Comms came on after the French Naval ship *Jacques Cartier* was heading to pick up the survivors in a life raft from the yacht *Armeni 55*. Have heard FF Mil sounding comms briefly here off and on over the last 10 yrs. First time managed to get any C/S. (IJ-NZ)
10424: YMA20 Ankara, Turkey in RTTY 50/900 at 2100 as follows — "YMA20 3550 ks/c (1500–0500) 6790 ks/c (0500–1500)". Yes, ks/c, kiloseconds per cycle, perhaps one wavelength would reach to the moon and back! (JD-UK)
10493: APPETIZER clg NECESSARY w/H161730 message in USB at 1730. (JM-KY)
10570: CHARLIE-WHISKEY wkg TANGO re: unid track carrying air-to-surface missiles at. 1910 in USB, exercise comms. (JJ-CA)
10584: Fapsi Moscow, RUS at 1425 in RTTY 75bd Msgs to KUL on link 00142. (AB-NLD)

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10757.5: Unid UK MIL "MUH" at 1522 to 1612 in PICCOLO 6; engr chl freq, w/one crypto channel running next one up; at 1539 "LOLOLOLOLOLO DE MUH MUH KKILO." Very strong for this freq and this time of day, maybe shipboard and on-site for rumored NATO exercise running up in the VACAPES area. Couldn't find it anywhere else after it pulled plug here. (AWH-FL)
10780: KING 30 wkg Cape Radio at 0105 in USB for msg relay re: ops schedule. (JJ-CA)
11015: VLN, School for Distant Education, Cairns QLD, AUS at 0446 in USB YL re next lesson will be on Thurs. at 2 o'clock. (IJ-NZ)
11024: Mil-Std-188-110A modem 2400bps, Unid, prob US, begins 1000 to 2100. (X-S.US)
11040: DDH9, Hamberg Meteo in RTTY 50/448 CQ's and RYs at 2017. (FH-FL)
11053: NIGHTWATCH 01 wkg Andrews monitored at 1530 in USB w/"two-tone" data comms. (JJ-CA)
11053.5: Unid w/siren followed by ANDVT heard at 0053 in USB and clear voice test counts. (JJ-CA)
11125: HZN, Jeddah Meteo in RTTY 100/405 meteo wx msgs at 1400. (FH-FL)
11175: KING 88 (Moody AFB HC-130, 347W/71RQS) wkg Andrews GHFS at 2027 w/ pp while he was doing drops here in the Patrick AFB area at JUDY and CROWN Drop Zones. (ALS-FL). At 0705, Continental 751 called for now closed Albrook Radio (Albrook AB, Panama). Ascension came up and 751 req they relay his info to the Mid-America ATC. The info was "Over LIXAS 0647z, next: RADIM 0700z, estimates TIGIR at 0745z. Currently at FL350." The Ascension operator explained he does not normally accommodate civilian traffic, but will try to relay the message. (ALS-FL)
11181: VACCINATE coordinating McCLELLAN's antenna posn for Data Circuit at 2210; THULE w/pp for KINGCRAB to WALDORF at 0024. (MF-OH)
11188.4: JULIET-0-ROMEO wkg HABITAT at 1941 in USB w/an ops report. (JJ-CA)
11191: HERSHEY at 1550 in USB checking clear and ANDVT communications w/FINE GRAY (sounds like). (RP-MD)
11215: RADIO MAINTENANCE wkg AIRCRAFT 588 at 1842 in USB w/signal ck and gone. (JJ-CA)
11220: Andrews wkg SAM 99 at 0608 setting up pp. (IJ-NZ) SAM 375 at 2238 w/Andrews in pp w/SAM Command Post and w/US Customs, passes ETA as 0015Z and IDs self as Gulfstream 4, tail # 20375 departed from Haiti inbound to southwestern FL. (RP-MD) HAPPY DAY (aka NIGHTWATCH?) wkg Andrews w/encrypted "four-tone" data on "311." at 1847. (JJ-CA) All in USB.
11265: Unid in USB w/wx for Lajes in Portuguese on this morning, might be NATO or Portuguese AF. (PP-FR)
11267: RARE DEN (sounded like) at 0138 and 0208 w/EAM traffic: XOVYVH . . . // 8968. (JJ-CA)
11295: At 0747, SAFAIR Op's clg ZSJIY in USB w/no reply and gone. (NJ-NZ)
11396: At 1700, Perth and Ujung Pandang in Sulawesi-Indonesia in USB, there was a third ATC but couldn't ID, Seram was also mentioned. (PP-FR)
11447.5: Unid CW at 1430, again at 1520 w/ long strings of single chars like "P X R A L C G T N U B Y O B BT," strong, handkeyed, not typical Cuban op procedures, not sure who. (AWH-FL)
11460: Andrews VIP clg TROUT 99 heard at 0059. SAM 973 wkg Andrews VIP for pp re: wx. (didn't catch the location, but the temp given was "-1") at 2158, also on 8047. Both in USB. (JJ-CA)
11541.7: RFLI Ft. de France in ARQ-E3 96/400 (circuit LIH) at 1450, a regular but very little tfc at this hour to Fr. Polynesia in the Pacific. Same at 1945. (FH-FL)
11553: McMurdo Station Antarctica at 2015 in USB clg vsl *Nathaniel B. Palmer*. (IJ-NZ)
11565: Mossad (E10) at 0600 in USB w/id EZI grp 77 commencing "ZRUWF . . ." //13533. (SD-AUS)
11567: Cuban CW cut # stn at 1831 w/ 5F msg. (TS-KS)
12444.5: UFJP, *TKH Anna* at 0922 w/CW msg to UHP5 (vsl is ex ST-1330, UNOQ). (HOOD-UK).
12561.5: UBHT, Revolutsiya (AB-0035) at 0820 in RTTY 50/170 admin to RKLM. (HOOD-UK).
12582: VIP34, Perth Radio, AUS in ARQ w/strong signal at 2300. (FH-FL)
12585: NRV, USCG Guam w/ARQ Ready Signal, CW ID at 1411. (FH-FL)
12590.5: UJE, Nizhny Novgorod Radio, CIS at 0718 w/ARQ ID marker. (HOOD-UK).
12607.5: WNU, Slidell Radio, LA in FEC at 2059. (TS-KS)
12610.5: RUF9, Temryuk Radio, CIS at 1716 w/CW ID and QSX 4187/8343/12454. (HOOD-UK).
12629: KHF, Guam w/ARQ Ready Signal, CW ID at 2145. (FH-FL)
12662: 7TF, Boufarik Radio, ALG at 2110 in CW w/marker. (RP2-TX)
12681: 8PO, Barbados Radio, BRB at 1933 w/CW Marker (not listed here). (AB-NLD)
12710: XSZ, Dalian Radio, CHN at 0200 in CW w/marker. (RP2-TX)
12719.8: ZLO, Waiurou Naval, NZ at 1430 in CW w/marker. (RP2-TX)
12765: UCW4, St. Petersburg Radio, RUS at 0825 w/CW msg to UEIT, TKH Amur 2507. (HOOD-UK).
12903: RBSL, Indian Navy, Mumbai at 1955 in RTTY 50/850 w/RYRY. (IJ-NZ)
13051.5: WLO, Mobile Radio, LA in FEC w/tfc list at 1903. (TS-KS)
13116: At 0904, NAFCOMSTAR wkg DARWIN CONTROL in USB re will maintain a loudspeaker watch this circuit (RAN channel ALPHA 5). (NJ-NZ)
13191: LZW, Varna Radio, BUL at 1208 in USB w/Tfc list. (AB-NLD)
13200: ROPER 82 (TX-ANG C-130H, 136AW/181AS) wkg Andrews GHFS in USB at 2007 w/pp to ROPER Ops re rental car reservations at Panama City, PAN. (ALS-FL).
13217: Unid "01" clg "77" at 2354. (JJ-CA)
13257: SENTRY 60 (E-3B Tinker) at 2110 in USB w/Trenton Military w/pp w/EAGLE 1. Sentry 60 reports "loss" of fighters for time period 2150-2202Z. Wants EAGLE 1 to notify DSN at Luke AFB. (RP-MD)
13304: El Al ops in Hebrew in USB. (PP-FR)
13306: Shanwick Aeradio, SCOT at 1913 in USB w/various a/c. (AB-NLD)
13342: At 1350, PIA Pakistan Airline wkg Karachi LDOC. Stockholm radio w/selcal ck w/ Continental 62 at 1400. (PP-FR)
13437: CTU, Monsanto in RTTY 75/850 testing, RYs, Fox to RPTI in EE at 1508. (FH-FL)
13458: The Counting: station (TCS) at 1900 in USB (Sat) YL/EE w/call-up to 466, count 1-0, beeps into msg. (Ed.-OH)
13949: Cuban SVR (tent), 1617 to 1620 in FSK/500 Morse repeating "IFXB ZAZ?" or similar, like previously noted on 8157 daytimes here, Lenin-school keying, so hard to copy, then off w/out further tfc. (AWH-FL)
14364: Unids w/Link-11 signals monitored at 1830. (JJ-CA)
14427: Unid FAPSI station in 75/500 RTTY, cct ID 60069 at 1620. (JD-UK)
14441.5: NNN0COL, MARS stn USNS Indomitable (T-AGOS-7) at 2302 in USB wkg NNN0KEB:USN MARS Shore Sta, FL, QSY to 14391.5 for pp. (DW-TX)
14470: NNN0CBY, unid ship at 2214 in USB w/MARS pp's to stateside. NNN0CCL, USCGC Diligence (WMEC-616) at 1636 in USB wkg NNN0KRQ (private op) w/ Valentine Day pp's, tried QSY to 20936 due to poor signal (not heard there). (CS-SC)
14575: RFGW MFA Paris, FRA at 0615 in FEC-A 192/400 w/5LG's. (IJ-NZ)

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14670: TSS CHU Canada at 2211 in USB w/good signal. (CS-SC)
14686: Unid wkg ATLAS at 2144 in USB re are at SAGINAW for the night. (MF-OH)
14687: Unid three-channel Piccolo-6 idling on all three channels at 1500; copied Ch. 1 to disc for more than two hours, but no traffic of any kind. (JD-UK)
14931: 8BY, DGSE, St. Assisse, FRA in CW w/3F traffic to Agent/Station 689, 1745-1800, QRT at 1800. (X-S.US)
15016: ASCENSION w/pp for REACH 101H (C-5) to FURIOUS at 2130. (MF-OH) SWEET 03, tail# 84-403, wkg McClellan at 1904 for pp to Nellis re: ETA 2100z, depart 2300z, 45 PAX, 1 pallet, fuel. (JJ-CA) Both in USB.
15034: Trenton Military, CAN monitored at 1926 w/wx. (TS-KS) Canforce Volmet at 2129 w/wx for Greenwood, Pearson, Edmonton, Winnipeg, Shearwater, and Cold Lake. (PP-FR) Both in USB.
15821: "20" at 0105 in USB wkg unid (very weak) re: ops. (JJ-CA)
16000: Unid TSS at 2156 in AM, poss VNG TSS Perth, AUS. (CS-SC)
16073: MKK, RAF Bampton, UK, monitored at 1730 w/2-channel Piccolo-6 wkg MUH (unid). (JD-UK)
16086: The Counting station (E5) at 1134 in AM, numbers station in progress. (SD-AUS)
16098: HBD20, MFA Berne, SWI at 0635 in ARQ w/5Lgs. (IJ-NZ)
16307.5: Spook Counting station at 1420, YL/EE w/3+2FGs. (AWH-FL)
16421.7: RFTJ, FF Senegal at 2140 in ARQ-E3 48/400 CdV ckt TJF. Return link not found. (AWH-FL)
16716.5: UDSX, TKH Vera Maryetskaya at 1108 in ARQ w/psn rpt from Km Klimkin to UFN (24110dwt bulker). (HOOD-UK).
16803.5: UYDV, RKTS More Sodruzhestva at 1515 in RTTY 50/170 crew TGs to URL. (HOOD-UK)
16817.5: KPH, San Francisco Radio, USA at 1642 w/CW Marker. (AB-NLD)
16822: 3AC47, Monaco Radio, MON at 0804 w/ARQ idler. (HOOD-UK).
16840.5: UJE, Nizhny Novgorod Radio, CIS at 1138 in FEC w/blind tfc for UFHO: TK Nefterudovoz 37, UFFP: TK Volgoneft 268 and UGMQ: TK Liko 1 (first logging of UJE w/their new telex gear). (HOOD-UK).
16842.5: KEJ, Hoolehua, HI in ARQ w/ship tfc at 2100. (FH-FL)
17015: UTQ7, Kiev Radio, UKR at 1329 w/CW ID and QSX 8341/12436/16639. (HOOD-UK).
17050: 4XZ, Israeli Navy Haifa, ISR at 1445 in CW 5LGs. (AB-NLD)
17165.6: CLA, Havana Radio, CUB at 1601 in CW w/CQ mkr. (DW-TX)
17236.5: UIW, Kaliningrad Radio, RUS at 0848 in CW giving QSL2 to UBJG: SRTM Deyma. (HOOD-UK).
17344: Royal Australian Navy, Canberra, ACT wkg *HMAS Townsville* and *HMAS Brunei* at 0603 in USB passing routine traffic. (IJ-NZ)
17410: Mossad (E10) at 1100 in USB w/msg id EZI //15980. (SD-AUS)
17445.6: 5YE, Nairobi, KEN at 2200 in 120/576 wefax. (RP2-TX)
17521.5: Royal Navy, Forest Moor, UK in RTTY 50/150 1830-1900, polar flutter present on signal. (X-S.US)
17904: At 0936, Auckland Radio wkg Argentina 1881 in USB, unable to contact PUNTA ARENAS, primary 17904 secondary 8867 AUCKLAND will be guard. (NJ-NZ)
17977: At 0717, SAFAIR Op's wkg ZS-JIY in USB, airborne Patriot Hills at 0436, estimating Punta Arenas 1039, copy Patriot Hills (Weddell Sea) Antarctica to Punta Arenas (Southern) Chile. (NJ-NZ)
18012: Possibly French military at 0957 in USB w/comms in FF. (SD-AUS)
18027: SENTRY 33 at 1936 in USB w/ Trenton Military in pp w/Raymond 24 concerning status of localizer on runway 35 at Tinker. (RP-MD)
18032.8: MFA Havana (CLP1) in RTTY 50/550 to S. American embassies, circulars 1830 to 1930. (X-S.US)
18290: NAVY 496, inbound Hickam, wkg Andrews VIP at 1958 in USB, was interesting to note that when Andrews req they go to F-576 (11153.5) 496 advised that his radio doesn't do half kHz freqs. Also found on 8040.0 and 11460.0 at various times. (JJ-CA)
18415: 8BY, French Intelligence, Saint Assise, FRA sending " VVV 8I3Y followed by 3Fs separated by a slant bar in faint CW at 0940 //14931 kHz. (TY-JA)
18648.5: At 1405, Warsaw Radio, POL in FEC w/nx in Polish, also foreign currency rate exchange. (PP-FR)
18667.9: Unid Arabic-language diplo in ARQ at 1440, selcalling SSTA, then a few words using ATU-80 alphabet. (JD-UK)
18677.6: Unid but probably CLP-1 Havana in RTTY 75/585 Nx EE ends at 2025. At 2Oj0 NX SS starts, Castro mentioned. Nx ends at 2100 and speed to 100 which proves unsatisfactory so back to 75, no good so at 2120 the problem is discussed on CW. (FH-FL)
18981: MKD, Akrotiri, CYP in two-channel Piccolo-6 on LSB at 1400 wkg MUH on 19509. (JD-UK)
18986.7: RFHI, Noumea in ARQ-E3 100/400 (HIJ) to RFHWW Papeete at 1900, (RFHJ Papeete also uses this frequency w/C.I. of HJI, Both stations also use 19498.7). At 2000, relay of marine bulletin in FF from RFHWW/ Haussaire, Papeete. (FH-FL)
19131: ATLAS w/pp for unid a/c at 2145. (MF-OH) FLINT 812 (DEA aircraft) at 1912 w/ATLAS (DEA contract facility) closing out radio guard. (RP-MD) Both in USB.
19136.7: Unid at1110 in ARQ selcalling KKVZ then off air w/HUXD which I believe is Arabic. (JD-UK)
19498.7: RFHJ, Papeete in ARQ-E3 100/400 (HJI) to RFHI Noumea idle 2030-2330, (RFHI Noumea also uses this frequency to Papeete at times). Another day at 2002 RFHI Noumea HIJ725) w/FF msg. (FH-FL)
19692.5: ZSC, Capetown Radio, AFS at 1807 w/CW Marker. (AB-NLD)
19888: Unid FAPSI station at 2340 in RTTY 75/500 w/5LG's. (IJ-NZ)
20179.7: Paris relaying msg from RFFTB Metz in ARQ-E3 100 /400 (IRE) to RFVI and many others at 1620. (FH-FL)
20633.7: RFFLCVM, Toulon in ARQ-E3 100/400 to RFVILR Garonne, 1400–2000. (X-S.US)
20820: CLP44, Harare RTTY 75/490 Nx SS starts 1650, ends 1702 then CW to CLP1 Havana. (FH-FL)
22108: Cherry Ripe, GUM at 1300 in USB, id 79161. (AB-NLD)
22377.5: KFS: Palo Alto Radio at 1618 in ARQ w/marker. (HOOD-UK).
22555: UUI, Odessa Radio, UKR at 1201 in USB CQ. (AB-NLD)
22610.5: CLA, Havana Radio at 1630 w/CW ID marker. (HOOD-UK).
22731: MGJ, Faslane Naval, UK at 1645 in RTTY 75/850. (RP2-TX)
22738: WOM Miami w/wx ending 1310 in USB. (PP-FR)
22979: VIP36, Perth, AUS w/ARQ-Ready-Signal, CW ID at 1605. (FH-FL)
23130: Unid FAPSI station in 50/500 RTTY, cct ID 60069 at 1450Z. (JD-UK)
23337: Unid clg Offutt Ops (sounded like), Andrews then responds and attempts to make contact, but no joy and both gone at 1932 in USB. (JJ-CA)
26320: MKK, RAF Bampton, UK in Piccollo-6 at 1530 wkg MTS. (JD-UK)
26356: Unid digital, throughout day when band open, that strange periodic 100/1325 (on/off each minute) pair of stations, slightly offset from each other in frequency, like heard around 5435 and 16095. (AWH-FL) same and 26356 — two 1360-Hz-shift 110 bd signals active for seven seconds at 29 and 59 seconds respectively after every minute. Similar to previously reported stations on lower freqs; but does anybody know what they are? (continuous while the MUF is high enough). (JD-UK)
30050: ALPHA 8 (sounded like) U.S. Military monitored at 2034 in NFM w/Alpha-numeric msgs. (IJ-NZ)
32000: Unid U.S. Mil at 1954 DESERT FOX Op's wkg GOLD 1, GOLD 2, BLUE 1, WHITE 1. QSO re "landing pad for white element" and "NATO Hill" in NFM. (AWH-FL)

This months contributors: (AB) Ary Boender, Netherlands; (AG) Alan Gale, UK; (ALS) Alan Stern, Florida; (AWH) Albert W. Hussein, Florida; (CS) Chris Steele, South Carolina; (DG) Dan Gillespie, Michigan; (DW) David C. Wright, Texas; (FH) Fred Hetherington, Florida; (HOOD) Robin Hood, UK; (IJ) Ian Julian, New Zealand; (JD) John Doe, UK; (JJ) Jeff Jones, California; (JK) John Kasupski, New York; (JM) Jack L. Metcalfe, Kentucky; (MF) Mike Fink, Ohio; (MS) Mike Scott, New Jersey; (NJ): Noel Jones, New Zealand; (PP) Patrice Privat, France; (RP) Ron Perron, Maryland; (RP2) Ray Prestridge, Texcas; (SD) Simon Denneen, Australia; (TS) Tom Sevart, Kansas; (TY) Takashi Yamaguchi, Japan; (X), Mr. X, Anonymous in southern U.S. and (Ed.) ye editor in Ohio. Thanks to all. ■

Clandestine Communiqué

BY GERRY L. DEXTER

TUNING IN TO ANTI-GOVERNMENT RADIO

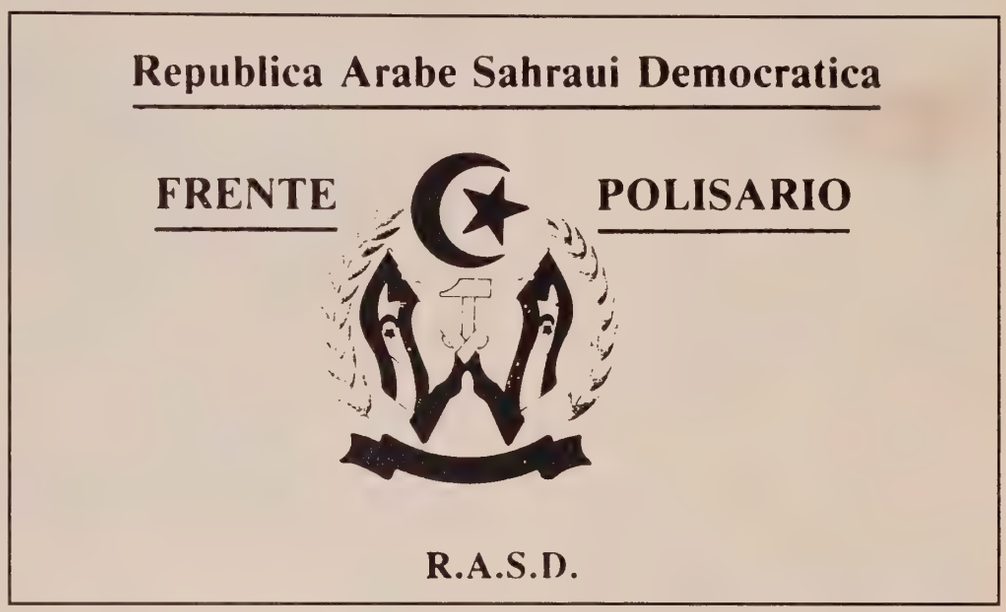
Another Ethiopian Clandestine, And The Complete Radio Marti Schedule

There's yet another entry in the word wars over Ethiopia and its former provinces, and provinces trying to wiggle their way free. **The Voice of Peace and Democracy of Eritrea** is on the air from 1430 to 1500 on **5500 and 6315**, using the same transmitters as the Voice of the Tigray Revolution, located within Ethiopia. Broadcasts apparently rotate, carrying the Tigrigna language one day and Kunamigna the next. The station speaks on behalf of the People's Democratic Forces of Eritrea, which opposes the Eritrean government. The broadcasts are, obviously, sponsored by the Ethiopian government. Apparently there is no transmission during North American evenings — at least none have been uncovered yet — so reception of this one here will be next to impossible.

Voice of the Tigray Revolution, which uses the same frequencies, can sometimes be heard in North America during their 0400 transmission. The complete schedule for this one is: 0400–0500 (Saturday/Sunday 0500–0900); 0930 to 1030 Monday–Friday, and 1130 to 1630 Saturday and Sunday. Also listen from 1500 to 1900 Monday–Friday, all in the Tigrigna language and **all on 5500 and 6315**.

What used to be **Radio Bukavu**, a "normal" station in the Congo (Kinshasa variety), is now under control of the rebel forces in that country, officially known as the **Congolese Rally for Democracy**. It's operating on **6713.3 USB** from 0400 to 0630 (best for North America) and 0900 to 1800, in French, Swahili, and other local languages.

Radio Marti, the U.S. government's broadcast effort aimed at Cuba, is currently operating according to this schedule: 0000–0400 on **7365**, 0300–0500 on **7405**, 0900 to 1200 on **5890**, 1200–1400 on **9565**, 1200–1400 on **7405 and 9565**, 1400–2300 on **11930**, 1400 to 0000 on **13820**, 1500–1800 on **11815**, 1700–2200 on **9825**, 2200–0000 on **15330** and 2300–1200 on **6030**, all in Spanish.



The Polisario Front claims its La Voz de Sahara Libre *is back on shortwave. (Thanks, R.C. Watts)*

Voice of the Tigers is the voice of the Liberation Tigers of Tamil Eelam and their seemingly endless armed effort against the government of Sri Lanka. The station is supposed to be operating from within Tamil-held territory in northeast Sri Lanka. Broadcasts are in Tamil and are on the air from 0030 to 0230 on **variable 7460** and 1400 to 1515 on **variable 7465**.

It may be that the Polisario Front has returned to shortwave. The group says its station is operating on **9902** from 1800 to 2200, although no one has been able to confirm this yet. The station calls itself **La Voz de Sahara Libre — the National Radio of the Saharan Arab Democratic Republic** and is believed to operate from a site within the Western Sahara refugee camps in Algeria. A mediumwave outlet on 1550 kHz has been in operation for some time. Programming is in Spanish and Arabic. If you are lucky enough to snag this one, reports can be sent to Polisario, 1 rue Franklin Roosevelt, 1600 Algiers, Algeria. They have been known to QSL in the past. If memory serves me correctly, La Voz de Sahara Libre used to be carried as a program on Radio Algiers International some years ago.

Here's another possible address for La Voz de la Resistencia, the station of the Fuerzas Armadas de Colombia (FARC) guerrilla group: Comision Internacional, Apt. Postal 27552, C.P. 06761, Mexico DF, Mexico.

The still relatively new Sudanese clandestine (take a deep breath here) — **Radio Voice of Freedom and Renewal, Voice of the People's Armed Uprising, Voice of the Sudanese Armed Struggle, Voice of the Sudan Alliance Forces** — is being heard quite well during late evenings in North America, around 0400 on **7000**. The station is the mouthpiece for the Sudan Alliance Forces. Their address is 37 Cassidy St. #228, Kingston, Ontario K7K 7B3.

The other Sudanese clandestine broadcaster is also a pretty easy catch. **The Voice of Sudan** operates on **8000** (sometimes a whisker below) and is also heard around 0400 with programs in both Arabic and English. This is operated by

(Continued on page 72)

BY JOCK ELLIOTT, SSB-734

CB Scene

27-MHz COMMUNICATIONS ACTIVITIES

Texas Ranger's Excellent TR-696F SSB Mobile

The folks at Texas Ranger seem intent on taking the CB market by storm. In February, you'll recall, they burst onto the scene with an excellent SSB (single sideband) base station. This month, we'll take a look at Texas Ranger's equally excellent TR-696F SSB mobile rig.

But first, some background about sideband, just in case you're new to CB or don't have any experience with single sideband. There are two types of CB transmission approved for use in the United States: AM and sideband. An ordinary AM signal consists of two sidebands and a carrier. The carrier, which contains about *half* the transmitted power, provides something for the receiver to lock onto, but it contains NO information. The sound of your voice is contained in each sideband, and they are identical.

Texas Ranger's TR-696F mobile delivers excellent AM and SSB performance in a good-looking package.

In sideband mode, however, the carrier is eliminated and so is one of the sidebands. All of the power of the transmitter is concentrated into the remaining sideband, and the result is that, under most conditions, sideband mode will carry a signal nearly twice as far as AM. The only rub is that, for SSB communications to work, both sending and receiving stations must be on the same channel and same sideband (upper or lower). In addition, CB sideband transceivers are more complicated to build and are therefore more expensive. Sideband is also a bit more complicated to operate, since you must carefully adjust an additional control, called a clarifier, to make the signal sound natural and lifelike.

It's no surprise, then, that sidebanding has attracted a dedicated group of CBers who are passionate about this form of CBing. Sidebanding too, has its own culture. Sidebanders normally use sideband club numbers for identification and often use some of the Q codes from ham radio during their communications. If you haven't tried sidebanding, let me recommend it to you; it's an enormous amount of fun.

If you're looking for a sideband mobile rig, the Texas Ranger TR-696F mobile is an excellent choice. The TR-696F is (HWD) 2 1/8 inches x 7 7/8 inches x 9 1/4 inches and weighs about five pounds. There is a bottom-firing speaker and a mobile mounting bracket that attaches to the sides of the case with four knurled knobs. A four-pin microphone plugs into a connector on the left side of the case. On the back panel, there are connectors for a power cord, antenna, external speaker, and public address speaker.

At the top left of the front panel, there is an analog meter that allows the user to monitor signal strength, RF power output, and SWR level. To the right of that, there is a TX/RX light-emitting diode. It glows red when the TR-696F is transmitting; green when it is receiving. To the right of that, there is a six-digit red LED frequency counter that displays the frequency of the selected channel. Moving to the right again, there are six pushbutton switches: one for turning the counter on and off, another for activating the automatic noise limiter, another for the noise blanker, a high/low tone switch, a button to dim the display, and an instant Channel 19 button. To the right of those six buttons, there is a red LED channel display.

Beneath the channel display is the channel selector knob. To the left of that, there is a knob for the clarifier, which is used in SSB operation. Moving to the left of that, there is a four-position switch for selecting a mode: upper sideband, AM, lower sideband, or public address functions. To the left of that, you'll find a three-position switch that selects the function of the meter: SWR measurement, SWR calibration, or S/RF. Next, there is a set of concentric knobs. The outer ring is used to set the SWR calibration, while the inner knob, which sticks out further, controls the RF gain.

Moving to the left again, another set of concentric knobs allows control of on/off/volume and squelch. Finally, the furthest-left knob (under the meter) provides control of the microphone gain. Pull this knob out and it activates an advanced noise filter that helps in the reception of marginal signals. In addition, it doesn't hurt that this is a good-looking radio that is well laid- out and easy-to-operate, even with gloved hands.

How It Performs

But looks aside, the TR-696F performs very well indeed. The receiver is quiet

and hears well, even under noisy conditions. In side-by-side comparisons, the transmitter and audio quality sounded nearly as good as a rig that costs three times as much. This is a classic sideband rig that comes with a two-year limited warranty. There's one catch, though: don't modify this radio or you void the warranty. There is a warranty seal on the side of the case. If it is broken or removed, the warranty is no longer in effect.

Suggested retail price of the TR-696F is $279, although the street price is less. One place to obtain this excellent radio is Bills2Way. The toll-free number is 888-710-4094.

From The Mailbag

I heard from Adam Smith from the great state of Washington. He says "Skip has been great lately — is there a cycle to this? Is it always totally random? Is my signal prone to go to certain parts of the country or do I have a shot at working all 50 states?" He adds that he knows shooting skip is illegal.

OK, Adam, you've said a mouthful. Yes, according to the FCC rules, shooting skip is illegal, but this makes about as much sense as the Weather Service having a rule that "it will never rain on the weekend." It simply makes no sense. Skip is a natural phenomenon brought on by the excitement of the ionosphere, one of the layers of the atmosphere. The level of excitation of the ionosphere is related to the amount of sunspots on the face of the sun (no kidding!). The more sunspots, the better skip is, and the number of sunspots follows an 11-year cycle. That means at the top of the cycle, skip is fantastic; at the bottom, there is hardly any skip. Right now, we are in the rising part of the cycle, about halfway between the top and the bottom. That means you can expect improving skip for quite some time. If you have Internet access, check out NASA's Webpage at <http://wwwssl.msfc.nasa.gov/ssl/pad/solar/sunspots.htm>.

And, yes, sometimes the skip seems to go only to certain locations, but it's constantly shifting from one place to another. That's the nature of skip. Be patient, and you'll be amazed at the stations and the places that come booming in to your location!

Further, here's why I get such a rash with the FCC's anti-skip rule: it's not like it is something we have control over. For example, if you speed in your car, it's because (barring mechanical failure) you decided to push down harder on the gas pedal. With skip, it simply happens. For example, when my co-columnist Ed Barnat and I were testing the Texas Ranger for this column, suddenly a fellow from Alabama showed up in the middle of our conversation. Ed and I are about seven miles apart, and the fellow from Alabama is at least a thousands miles distant. Ed and I were talking and he heard us. It wasn't like we were trying to talk a long distance, it just happened as part of a natural phenomena.

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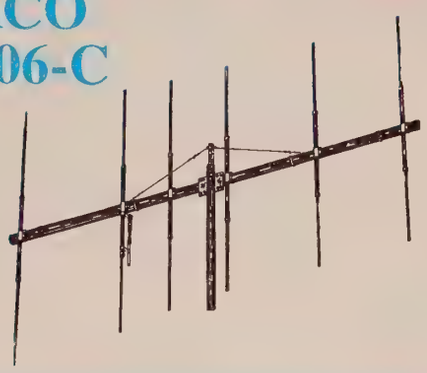

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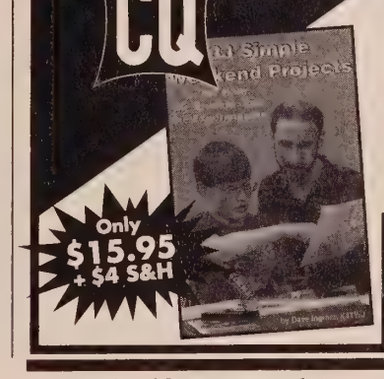
CIRCLE 69 ON READER SERVICE CARD

From CQ

33 Simple Weekend Projects



FROM DAVE INGRAM, K4TWJ!

"33 Simple Weekend Projects for the Ham, the Student, and the Experimenter" gives only a hint at the fun to be found in this little book. Dave Ingram, K4TWJ, has pulled together a collection of do-it-yourself electronics projects from the most basic to the fairly sophisticated, including station accessories for VHF FMing, working OSCAR satellites, joining the fun on HF, trying CW, building simple antennas, and even a complete working HF station you can build for $100, plus a measure of practical tips and techniques on how to create electronic projects yourself!

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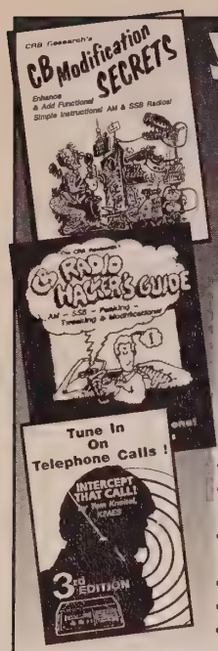
It's Up To Us — Revisited

I heard from a number of people who said they would monitor Channel 9 as a result of my recent column entitled "It's Up To Us," and I want to state publicly that I'm very proud of each and every one of you!

Keith Herzig, publisher of *Sporadic Waves* newsletter, wrote to say "After reading your article, I was inspired to get up, turn on my CB radio, and tune it to Channel 9. It was exactly 12 noon, so there was the usual AM squeals and noise. I set the squelch and began to monitor as I put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CIRCLE 11 ON READER SERVICE CARD

the finishing touches on my newsletter. As usual, the squelched silence was interrupted by a man speaking Spanish. I could only hear one side of his conversation (obviously shooting skip), but what really annoyed me was that after about a half-hour, this same person turned his mic over to his child (I'm guessing a two- or three-year-old, which is basically incoherent in any language)! After about an hour, I had enough and had to shut my radio off. I will continue to monitor Channel 9 from time-to-time, but I'm probably going to do so after the sun goes down!"

Well, Keith, the best way to handle skip on Channel 9 is to turn the squelch up higher. I know there may be times when it seems like there is nothing but wall-to-wall skip, but set the squelch so the noise doesn't bother you. Even if you can only hear a mile or so, that's better than not monitoring at all. I remember monitoring once with the squelch so high that I wondered if I could hear a breaker in my own driveway. That was the day that a truck hit a child less than a half-mile from my location, and I was able to dispatch help. Just set the squelch, say "This is (name of your station) listening," and go about your business. If enough of us monitor, we'll get the job done! Incidentally, Keith wants to hear from anyone who is involved in a sideband net. *Sporadic Waves* includes an excellent guide to sideband nets in every issue, and if yours isn't listed, it should be. Write to Keith Herzig, *Sporadic Waves*, P.O. Box 751, Chester, MA 01011 or phone 413-623-9940. Send him a large SASE and a buck, and he'll send you a sample of his newsletter.

Bryan Gadow wrote to say: " Your article did encourage me, though, and I honestly will start monitoring 9 more often. I have heard it work — with both the CB and scanner on in my truck. I followed the action as a trucker reported a reckless driver to the town police, and within less than half a minute, the town sheriff and state police were on the lookout. In a few minutes, he was caught."

That's the spirit, Bryan. To steal a line from the sneaker people: "Just do it." If you're part of a CB club, sideband, or otherwise, encourage everyone to monitor Channel 9 whenever they can, 'cause if we don't do it, it won't happen.

Until next time, keep those cards, letters, and shack photos coming! Write to me at *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801 or E-mail me at <lightkeeper@sprintmail.com>. ■

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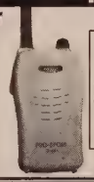

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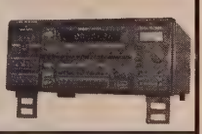

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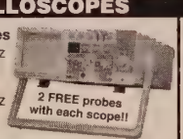

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Our June Winner

Bill Fleming in upstate New York writes, "My parents told me that when I was about five years old, I used to listen to the old Philco radio, which was bigger than me at the time. I got seriously started in radio in 1966 with an old RadioShack shortwave radio. That's when I first started sending for QSL cards. Since then, I've accumulated well over 1,000 verifications.

I still enjoy the hobby very much. Now, I use an ICOM R72 and 8500, along with a GE Super Radio II. I never seem to get tired of the hobby and have met many nice people because of my radio hobby. I enjoy your magazine very much." ■

CIRCLE 67 ON READER SERVICE CARD

CIRCLE 63 ON READER SERVICE CARD

Clandestine

(from page 67)

the Sudanese National Democratic Alliance. Reception reports can be sent to 16 Cameret Court, Lorne Gardens, London W11 4XX, United Kingdom.

Radio Free Somalia, operated by the Somali Salvation Democratic Front, is on the air from 0100 to 0300 on **7100** in Somali and English. We'd guess that this probably uses very low power. The address is c/o Sam Veron, 2 Griffity Ave., Roseville NSW 2069, Australia.

Another Somali clandestine is **Radio Mogadishu** — Voice of the Masses of the Somali Republic, (sometimes Voice of the People) — which broadcasts on **11204 USB**, in Somali, English, and Arabic. An **alternate frequency is 6540**. No schedule seems set yet; the station is being heard as early as 1200 to 2100 close (sometimes earlier) and then again in the evenings around 0400.

That wraps things up for this time. A reminder that your informational input is always most welcome, including loggings of clandestine stations, address and location information, background info on the various groups which support these stations, illustrative material, and anything else that's clandestine. Thanks for your continued interest and support.

Until next time, good hunting! ■

Tuning In

(from page 4)

calls. Trouble is, it's already law! Let's take a look at some history to become fully informed about what this bill does.

The Electronic Communications Privacy Act of 1986 was passed and signed into law after a heavy lobbying effort by Motorola and other companies standing to profit from guaranteeing cellular phone users "private communications." This was accomplished by making it illegal to intentionally listen to cellular phone conversations, remote broadcast pick-ups, voice paging, and scrambled transmissions.

In April 1994, an amendment to that law made it illegal to tune cordless phones and illegal to manufacture, sell, or import a radio scanner that receives cellular frequencies or is capable of being easily modified to receive these frequencies. Of course, we know that today's scanners are known as "cellular blocked." This brings me to the recent quote from Rep. Tauzin who said right after 514 passed the House, "Off-the-shelf scanners can be easily modified to turn them into electronic stalking devices." Really, Billy? Show me. The fact is, continued verbal assaults by Tauzin and Wheeler at casual radio enthusiasts — law-abiding scanner users *including* amateur radio operators, volunteer firefighters and their *families,* the media and ordinary citizens who simply enjoy being aware of what's going on in their community — is an affront not only to radio enthusiasts, but all Americans.

The radio spectrum, *up until 1986* with the passage of the ECPA, had been considered public. *A person using a radio* — and many forget that a cellular or cordless phone is indeed a radio — is responsible for using discretion when talking to another party. You shouldn't routinely give out credit card information, discuss when you're away from home, give bank account information, etc. That's common sense. It's why some public safety agencies and the military often scramble communications. You never know who's listening to *ANY* comms — including Uncle Sam, in one form or another. Since no part of our public radio spectrum had ever been put "off limits" — even during the years when the older "mobile phones" were being used in the 400 MHz range of the spectrum, the Communications Act of 1934 still, rightfully so, applied. Listen if you are so inclined, but don't discuss what you hear.

Remember the Newt Gingrich cellular phone call that was intercepted by a Florida couple some time ago? They were prosecuted and fined $5,000. It's what precipitated the cellular industry and Rep. Tauzin to react as they have in this matter. Had the Speaker of The House used common sense, he would have used a secure phone. Were I the Speaker of The House, I would have. *It was this phone call (and the alleged subject of the ensuing conversation) that raised Washington's ire and that of the cellular industry.* And frankly, had the cellular industry done the right thing years ago, providing across-the-board encryption on all its customer networks, this topic would not exist. Now the cell industry is backstepping — hawking digital telephones and holding the ECPA (and of course H.R. 514) sky high in the name of "guaranteed" and "right to privacy." I'm not arguing whether or not cellular phone users should have privacy. They should. But *not* at the expense of our radio spectrum and the public's right to access that spectrum. Capitol Hill and the CTIA have the cart-before-the-horse, and have therefore duped the public into a false sense of privacy with these laws.

We've reported that, according to industry insiders, cellular phone handsets — analog and digital — are ready for encryption, making H.R. 514 completely unnecessary. All the industry must do is upgrade the network infrastructure. Even old analog cell phones are capable of encryption — IF the industry chooses to take the high road and accept their responsibility. The cellular industry could bring in big bucks selling phone privacy much like other services, such as return-call, call blocking, and other services. Or, they can take a less-traveled road pushing through laws, such as H.R. 514, telling subscribers their calls are secure because the law says it is. Kind of makes you wonder, doesn't it? Laws and amendments such as these are a first-step toward other freedom-eroding laws. What's stopping Congress and the Senate from passing laws making it illegal to tune certain foreign *broadcasts* within a specific range of frequencies *on shortwave*? This legislation goes far beyond the radio spectrum.

The point is, the burden of ensuring privacy is on the wrong party. It belongs on Mr. Wheeler's (and as long as Tauzin has his nose in this business, his as well) back, not on radio enthusiasts. Remember the fact that those old UHF tunable televisions are capable of receiving cellular frequencies? Does the industry realize that if a person lives in close proximity to a cellular tower they can, and unfortunately frequently do, hear cellular phone transmissions on home entertainment equipment, amateur radio gear, and clock radios? What would Tauzin and Wheeler do, make the manufacture, sale or importation of these devices illegal? They've repeatedly said that as technology changes, the law must reflect those changes. Of course, that isn't always necessary or even appropriate, as in this case.

In the case of the new H.R. 514, a simple analogy could be made that the installation of new, high-tech gee-whiz radar in police vehicles doesn't require *another law* on the city's books emphasizing that the downtown speed limit is still 25 mph. The speed limit hasn't changed — it's still 25 mph. Another law reminding us of that fact is, very simply, unwarranted.

Wheeler's Official Testimony

It's really unknown what the long-term effects this law might have as new technology is developed and used by public safety agencies and other groups — not just the cellular industry. But one thing is

certain: Mr. Wheeler's testimony on February 3 before the House Subcommittee on Telecommunications, Trade, and Consumer Protection is yet another pack of lies and one-sided comments. He said, "This bill will further encourage the growth and development of wireless services by deterring eavesdropping and affording subscribers even more privacy protection than they have under current law." (Remember my analogy above?) He continued, "Congress strengthened the laws governing wireless privacy when it became apparent that existing protection was insufficient." What's "insufficient" is the way the cellular industry has taken their responsibility of ensuring their customer's conversations are TRULY secure. They haven't.

He continued to say, " . . . one case was lost after the prosecutors were unable to prove that the eavesdroppers had 'intended' to intercept wireless conversations and another because the eavesdropper had not 'disclosed' the contents of a conversation." Recall, please, that one doesn't need a scanner to hear a cellular conversation, as I mentioned previously. Wheeler went on to testify, " . . . the Act attacks these problems from several fronts . . . it expands the definition of the frequencies that may not be scanned to include digital PCS frequencies, as well as cellular . . . this provision reflects a compromise between CTIA and the amateur radio community and it ensures that citizens are not prevented from listening to non-commercial radio frequencies like those in the emergency or public safety bands." Here again, he can't possibly address what the law, as currently written, will do down the pike. Will it require another law? And compromise? I heard nothing about a compromise for ordinary citizens — non-amateur operators — the majority of America. Armchair monitors are *NOT* electronic stalkers, as both Wheeler and Tauzin continually say.

In Mr. Wheeler's testimony, he also said, "The millions of Americans who use wireless communications deserve to have their privacy protected." I agree. Wheeler should be held accountable and do his job. The bottom line is that people intent on committing a crime whether it's breaking and entering, (using a crow bar and flashlight); murder (with a gun, knife, kitchen chair, or grandma's cane) aren't the ones affected by making it illegal to possess and use these devices as a criminal tool. Laws such as H.R. 514 won't stop a criminal, but it *will* stop ordinary folks from listening to the public airwaves and potentially make grandma a felon — unless legislators "exempt" senior citizens from the effects of this law.

Interestingly, I'll bet if you talked with the legislators, the D.C. Stooges would tell you they've "done the right thing" for the 63 million Americans using cell phones, but in hindsight, they've actually done them a disservice and set the stage for future assaults on the public. Once again, it's politics as usual, as our public servants demonstrate that what goes on inside the Beltway is a far cry from what the public wants and expects of it's leaders in Washington. At a minimum, it *should have* been made crystal clear in H.R. 514 that digitally-modulated public safety radio systems are NOT included in the definition of "protected specialized mobile radio service." Unfortunately, that didn't happen. Once again, the nyuk-nyuk-nyuk is on *our* carpet. ■

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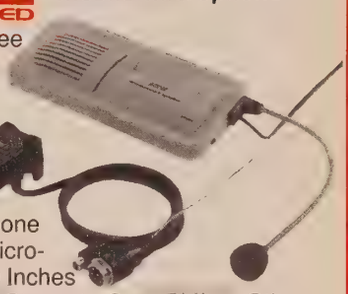

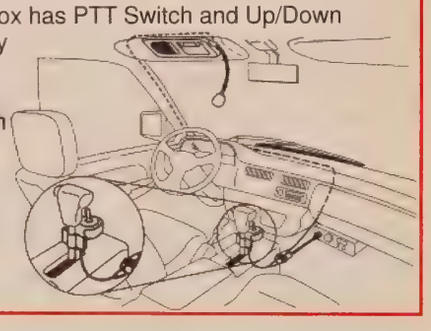

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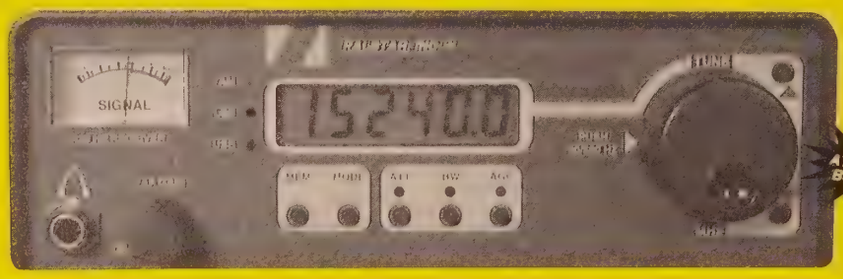

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CIRCLE 79 ON READER SERVICE CARD

cled 1XE's activities. He was also one of the few print journalists of that time to speak positively about radio (he also spoke positively of women in radio, another rarity in 1921).

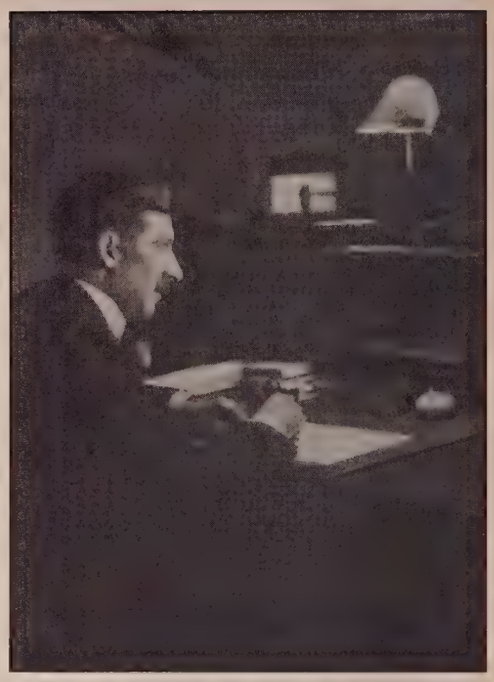
As time passed, there would be other members of the Boston media corps who became fans of 1XE. More Boston newspapers realized that radio was here to stay, and they gradually began writing more about it, and by mid-1922, the AMRAD station was getting some regular mentions in print. The Boston radio reporters all did their best to defend 1XE's honor: they would write about KDKA or other large stations, but they would frequently mention that "our own 1XE" absolutely was on the air before KDKA. One Boston writer even went so far as to refer to Harold Power as the father of modern broadcasting. But the national media usually failed to notice. When a news magazine wished to speak about the progress of radio, the example given was nearly always one of the large corporate-run stations. (One notable exception occurred in the magazine *Leslie's Weekly*; columnist Arthur Ruhl, a passionate fan of radio, praised 1XE in an early 1922 article about stations he had listened to and liked).

As commercial radio slowly grew, 1XE remained in the middle of two worlds — it still had some programming aimed at the amateurs (including code practice), yet it also broadcast programs and features that were heard on the commercial stations, such as World Series scores and inning-by-inning game summaries, political talks by major politicians, and weekly church services for shut-ins. Noticing that the station was becoming increasingly popular, the Boston Police began using it to help find stolen cars; a nightly "police report" was started in the spring of 1921, the first time radio was used to fight crime in New England. 1XE was often referred to in print and by listeners as "the Medford Hillside station" or "the AMRAD station," but it was among the first to have an identifying slogan: "The Voice of the Air." To the modern ear, that slogan makes little sense, but in the early '20s, listeners spoke of the "ether" or the "air" when discussing where radio signals came from. They put on their headphones and every night, some new station would magically appear — or if there was a lot of static and interference, the same signal might swiftly disappear — one never could predict what would come through. AMRAD was trying to offer a positioning statement — a rather advanced concept for 1921. In other words, if you were hearing a radio station, why it must be the AMRAD station! Several years later, a radio critic at one of the major newspapers would comment that out of all the stations on the air in greater Boston, only AMRAD had a slogan — it had been changed by this time to "Where Broadcasting Began" but whatever the station was using, the critic thought this was a wonderful way to help listeners remember the station they were listening to, and advised more stations to come up with positioning slogans.

From a programming standpoint, 1921 was a very good year for 1XE. It was still the only station in Boston (and until mid-September, the only one in Massachusetts; WBZ did not go on the air till September 19, and they were in the western part of the state, 80 miles from Boston, in the city of Springfield), so if somebody famous was in town, chances are they found their way out to Medford Hillside to perform.

It was in 1921, for example, that the famous economist Roger Babson gave his first business talk via radio from 1XE. Respected classical vocalist Dai Buell sang from the 1XE studios; her performance was written about in a number of newspapers and magazines. 1921 was the year when Joe Rines first performed at 1XE — Rines would go on to become one of Boston's most successful band leaders, record a number of hit songs, and perform over the NBC Radio Network. Band leader Leo Reisman, and vaudevillian Morey Pearl were among the many others who entertained the 1XE audience that year for the first time. And in 1921, a young man who had been working at Gilchrist's (a Boston department store), decided he would much rather perform over the radio. 1XE gave him a chance to do that, and he went on to a 50-year career in both radio and TV as one of the most beloved hosts of a children's show, "Big Brother" Bob Emery.

Another interesting thing occurred in 1921 — a sponsored radio show. At that point in time, radio was still largely a volunteer activity, but Eunice Randall, the popular "Story Lady" had her show sponsored by "Little Folks Magazine," which did some giveaways much like one might hear today. This sort of barter became quite common. Station 1XE got its phonograph records from a Boston record store, in exchange for promotional mentions, for example. 1XE was still not generating much revenue, but it was gaining more and more listeners, who, it hoped, would buy AMRAD receivers and other radio equipment. So, it decided to finally hire some full-time staff for 1XE, in addition to the volunteers.



The man with the radio plan in 1922, Harold "Jimmy" Power.

Many broadcast historians over the years have dismissed 1XE's accomplishments because it lacked commercial call letters; to these scholars, 1XE was mainly an amateur station, not to be grouped with professional stations, like KDKA or WJZ. But Harold Power found this logic puzzling, and in a letter to George Clark in 1941, he explained that back then, he had not seen any reason for changing 1XE — everybody knew the station by that name, and there were certain benefits to being classed as an experimental station. 1XE did not have a big signal, and in the early days of commercial broadcasting, the Department of Commerce decided that all the commercial stations would have to share 360 meters (about 830 kHz). There is evidence that the DOC regarded radio as some kind of fad that wasn't going to last, so thoughts of what might happen if lots of stations suddenly went on the air — which did in fact happen by mid-1922 — didn't cross anybody's mind when this lone frequency was allocated. For a while, there were perhaps 10 stations doing professional broadcasting, and none of them were on the air more than a couple of hours a day, so it wasn't a problem. However, as time passed, radio showed no signs of vanishing, and more new stations were coming on the air. Suddenly, crowding at 360 meters was a real concern. 1XE, since it was still experimental, did not have to join the growing throngs on 360 meters. Power also said in interviews that he did not

". . . I strongly doubt that they (AMRAD) ever had the money to compete with Westinghouse."

believe the commercial license was going to last. He thought it was some kind of publicity stunt thought up by Westinghouse, and therefore he did not need one for 1XE. It would not be until early February of 1922 that the AMRAD station would finally get its commercial license and become WGI.

The Big Radio Boom

1922 was the year of the radio station boom. Suddenly, from no more than 20 stations, by year's end, there would be hundreds. Boston would get three of them; WAAJ, WFAU, and WNAC. The first two did not survive and were never much of a factor. But the third one would make a major impact.

WNAC went on the air in late July of 1922, owned and operated by John Shepard III, the wealthy owner of the Shepard department stores. Although Guy Entwistle had a warm place in his heart for 1XE/WGI, reality could not be ignored. WNAC was state-of-the art. It had a beautiful studio, the newest equipment, a powerful transmitter, and Shepard could even afford to pay some of his performers. Suddenly, little WGI had a problem it had never faced before: Not only was it no longer the only game in town (keep in mind that in 1922, WBZ was still not a player in Boston and even had major signal problems that made the station difficult to receive there), but its competition could attract talent by offering them cash, something WGI was seldom able to do. Harold Power was not a stupid man; he knew he would not have the only station in greater Boston forever, and he tried to find some creative ways to generate more cash for the station. One of those ways got him in trouble with the DOC, and is yet another example of a disputed legend of broadcasting history. There is solid evidence that, contrary to what most text books claim, WEAF was NOT the first station to run a paid commercial. True, it was the first "toll broadcasting" station, but it was little WGI that had commercials on the air before the famous WEAF did. On April 4, 1922, Power arranged with a car dealer and the dealer's ad agency to air some paid advertising. This led to a series of cease and desist letters from the District 1 Radio Inspector, Charles Kolster, and A.J. Tyrer, Acting Commissioner at the Department of Commerce, telling AMRAD that the terms of their license did not permit them to broadcast direct advertising. (And unlike the apocryphal letter from Conrad to Dunham, these letters DO exist, and I have copies of them.)

Today, we cannot imagine the FCC telling radio stations *not* to broadcast commercials, but in the early 1920s, Herbert Hoover and others had gone on record as saying broadcasting should strive to be educational, and airing direct advertising was not in the public interest! So, 1XE/WGI was just a little bit early with a practice that would soon become commonplace. Now, the station was back to the same problem — broadcasting was becoming more expensive, and AMRAD needed a way to produce some revenue in order to compete. It was a dilemma that many early stations found difficult to solve, especially those not run by a company with deep pockets.

As for Harold Power, he concentrated

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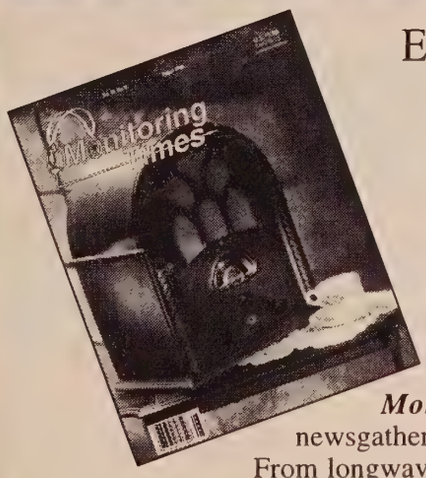

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his efforts on promoting AMRAD, while advancing the cause of radio wherever he could. While on the first board of directors of the National Association of Broadcasters in 1923, he attended and participated in several national radio conferences, where he offered useful suggestions for working out some of the problems of frequency allocation (the DOC had opened up a couple more frequencies besides 360 meters, but this still was not enough for the ever increasing number of stations). He helped to organize a group to lobby for the interests of radio manufacturers, and had numerous speaking engagements. Meanwhile, his relationships with the people at Tufts were deteriorating, a fact which would contribute to AMRAD's problems.

AMRAD Becomes A Nuisance

As I mentioned earlier, at first Tufts had been very supportive of 1XE, seeing it as a good place for students to apply what they were learning about engineering. But as students spent more time at 1XE than in class, and as Power began using some of the students to work for AMRAD, the president of Tufts began to see AMRAD as more of a nuisance than a benefit. Power made a profit, and Tufts basically got the prestige of having the company on their campus. It suddenly didn't seem like such a great trade-off, especially when Power began expanding the AMRAD plant and expecting Tufts to help pay for it. At one point, when the board of directors refused, Power went out and spent money for what he felt AMRAD needed — without getting the board's permission. It would be an ongoing issue; was AMRAD an independent company or did it have ties to Tufts and should therefore abide by a budget that Tufts and AMRAD negotiated? From correspondence I have seen, Power was not one to take "no" for an answer from anyone, and finally, the president of the college decided that when the lease on their building was up, AMRAD would have to go.

Harold Power knew how to get himself on the right broadcasting committees, and he also knew how to hire brilliant people and convince them to work for cheap: Howard Tyzzer was regarded as an excellent engineer, and much of the equipment 1XE/WGI used had been designed by him. Ken Thompson could sell and he knew public relations. Eddie Dunham could do anything on air from a Shakespearean soliloquy to a piano solo. And Eunice Randall had become a very popular announcer, as well as an emissary for AMRAD, appearing at numerous radio shows to demonstrate the latest equipment. Many other members of the WGI staff showed great ability — like Bob Emery, who was still doing mostly musical performances, but who gradually began creating the Big Brother Club, a show that an entire generation of kids grew up with.

". . . the fact remains that KDKA was much better equipped to make its achievements known."

Harold Power also knew how to spend money, especially other people's. And that brings us back to J.P. Morgan. The public was probably quite unaware that the money Power was spending to keep AMRAD operating was not his — it was J.P. Morgan's. And AMRAD was beginning to have serious financial problems, the result of manufacturing the wrong products for the market, filling orders slowly, and not reacting quickly enough to changes in the technology. The inner workings of the company and why it was failing have been well documented in Alan Douglas's excellent reference, *Radio Manufacturers of the 1920s*. Also, many former AMRAD employees have noted in their letters that Power was excellent at thinking great thoughts, but he wasn't a very good businessman. While WGI was still popular, AMRAD was now struggling. It is one of life's mysteries how a company with such great promise had somehow managed to squander nearly all of the seed money Morgan had given it (estimates ranged as high as $800,000 overall), but by 1923, Morgan was tired of giving AMRAD more money and seeing no return on his investment. By this time, some of the more talented AMRAD people, as well as a few of the WGI performers, had decided to seek a more stable (and more lucrative) place to work. The exodus was slow — a couple of people here and there, and perhaps the audience did not notice that the talent they once heard on WGI was now appearing on WNAC or WBZ.

The big blow came in mid-1924 when the newest Boston station, WEEI (owned by Edison Electric Illuminating) went on the air. Big Brother Bob Emery, who by 1924 had the most popular show on WGI and was also their program director, took his assistant and several of his staff over to the new station. To make matters worse, few singers or announcers were willing to volunteer anymore — there were too many stations that paid for that work. It became more and more difficult for WGI to find people to perform. But being innovative, the station mined the colleges, hooking up with various performing arts programs and giving many young men and women their chance. However, even that was a stop-gap measure, since some of these performers were wooed away by the bigger stations. In the ideal universe, the many people whose careers had taken off thanks to WGI would have continued to perform for them now and then — but in the real world, as people became famous, they moved on. Little WGI was no longer in their plans, and fewer big names were heard on the AMRAD station. Still, the WGI staff refused to give up and they continued to do their best to put on good programming. They offered college courses by radio (which had been started in early 1922 with a series of lectures by Tufts professors), they opened their doors to various religious groups, and they had talent shows to find and promote promising new performers.

As AMRAD's financial problems worsened, WGI had increasingly more trouble repairing equipment. But still, the station kept doing the best it could, and it still had plenty of fans who found it quirky and somewhat charming. But it also had a few media critics who sensed that something was wrong and began to write about it occasionally. The financial problems were still a secret, but the equipment problems were obvious. It was hard to dislike WGI, however, and even the critics tried to address the issue in a gentle way. Harold Power evidently would not respond to their questions, so the radio reporters were left to guess at what was going on. The final chapter of the story surprised even them.

1925 — WGI Leaves The Air

One day in mid-April of 1925, WGI (which in February had changed call letters to WARC) left the air and did not return. The first week of April, AMRAD suddenly went into receivership, at which time the truth about Morgan's money (and rumors about Power's mismanagement) surfaced in the newspapers. What did not

surface was a memo from the Tufts board of directors saying basically that the lease was up and AMRAD was expected to go elsewhere. This was something Harold Power could not afford to do, but at the end of April, he had to vacate. Meanwhile, Tufts left the media with the impression that the radio station would be back on the air very soon, even though AMRAD was bankrupt. All the local media dutifully repeated the Tufts press release that the college needed the building AMRAD had used, and how they were trying to work something out so that the radio station could still broadcast. We will never know if there was a real plan to get the station back on the air — and while Power held on to the license, renewing it faithfully for months, WGI never returned, and no explanation was ever given. April of 1925 marked the end of Boston's first station, and the staff never got the chance to say goodbye.

John Shepard III, owner of WNAC, knew AMRAD was in trouble. He also knew that WGI was still a popular station, problems and all. He tried to buy it, with the stipulation that Harold Power not be involved. Power refused the deal (Power and Shepard had been rivals for the past several years, and their relationship was not amicable, given that both had huge egos and both were stubbornly devoted to their own way of doing things). Unfortunately, no other potential savior emerged, and as weeks passed with no solutions in sight, the remainder of the WGI staff accepted the obvious. Most of the AMRAD folks found work with other companies; AMRAD was eventually purchased by Powel Crosley, and still manufactured products well into the late 1920s.

So why has 1XE/WGI been written out of history? Here is a station that may very well have preceded KDKA, which aired some of the first paid advertising, where some of music's biggest stars began their careers, where college courses by radio and police reports and Roger Babson's famous business talks were first heard, a station which had the first woman announcer/engineer, the first positioning slogans, a remote truck that made appearances months before some of the much better known "portables," and whose minuscule signal carried it amazingly long distances (in 1923, it was heard in England!). Why is it so seldom mentioned today? My theory is that the major books on the subject of broadcasting history were written years after the demise of WGI. If history is written by the victors (or by the survivors), WGI was long gone by 1938 when Gleason Archer wrote his book or 1966 when Erik Barnouw wrote his. AMRAD too was gone, most of its records and files burned in a fire. Perhaps if WGI had lasted into the 1930s, it would have been easier to remember the station. But those of us who love radio should remember — in the early '20s, 1XE/WGI brought joy to many thousands of people. It was creative, exciting, and according to the reporters who went there to get interviews, it was a fun place to visit because you never knew who was going to drop in. The famous and the near-famous went to Medford Hillside, along with the unknowns who hoped to become famous. It may not have been fancy, it may not have been polished, but it was what radio was supposed to be — it was a friend to the audience.

Years afterward, in fact, people would still write to the newspapers asking when WGI would be back on the air. For all of his faults, Harold Power's vision of radio and his prediction that one day it would be an essential part of everyone's life was accurate. I only wish he had lived to see his station restored to the magazines and history books as the pioneer station it truly was. ■

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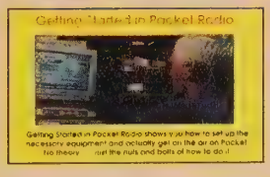

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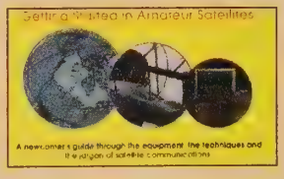

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ASTATIC 15
Alinco 25
Alpha Delta Communications, Inc. 9
Antenna Supermarket 55
Antique Electronic Supply 20
Antique Radio Classified 23
Atomic Time, Inc. 35
Bill's CB & 2-Way Radio Service 71
C. Crane Company ..... Cov III
C & S Sales, Inc. 70
CQ Books 79/
CQ Videos 75
CRB Research 51,70
Computer Aided Technologies 42,43
DWM Communications 51
Davis Instruments 51
Delphi Internet 23
Durham Radio Sales & Ser., Inc. 51
Everhardt Antennas 71
Firestik Antenna Company 53
ICOM America, Inc. 11
Jesse Jones Industries 71
Jo Gunn Enterprises 70
Lentini Communications, Inc. 1
MACO Mfg. /Majestic Comm. 69
MFJ Enterprises, Inc. 39
Midland Consumer Radio, Inc. 28
Monitoring Times 75
MoTron Electronics 28
Mouser Electronics 12
Optoelectronics, Inc. ..... 5,Cov IV
Quement Communications 28
PALSTAR INC. 73
Phillips-Tech Electronics 51
REACT International, Inc. 30
REEL-talk, Inc. 19
RF Limited 73
Radio World, Inc. 65
shoc 35
Signal Engineering 12
Software Systems Consulting 53
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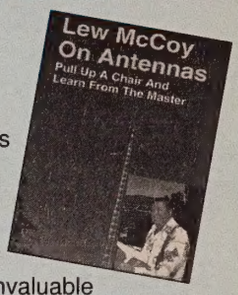

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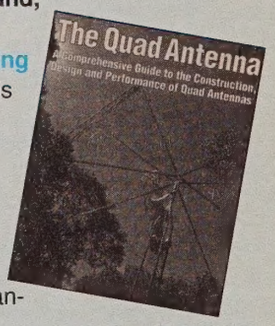

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The Loose Connection

BY BILL PRICE, N3AVY

RADIO COMMUNICATIONS HUMOR

Still Alive (And Crazy) After All These Years

Yet another piece of my childhood — and probably yours — is gone. And it's gone for all kids henceforth unless our culture changes direction, which isn't very likely. It's gone to political correctness and to the encroaching regulations that squeeze the last bit of unregulated fun from our lives. Yes friends, I'm talkin' about the dump! Right here in Signal City — it starts with a D and that rhymes with G and that stands for Gadgets!

"Yet another piece of my childhood — and probably yours — is gone. Yes friends, I'm talkin' about the dump!"

Gone are the days when the most fearsome event of dump-picking would be for a kid to startle a rat or have the feared dumpmeister yell, "Hey! Get outta here you kids!" I can tell you with certainty that no "radio kids" are gonna find the magical treasures of gadgetry, wires, and sometimes whole, working radios — in the second hand stores, thrift shops, and even the trendy "consignment shops," which are today's "dumps." And you can't even carry a BB gun to most of those places to shoot rats!

My trusted friend and faithful companion Dave "Tonto" Bradley reminded me of those times today, when he reminisced about the "broadcast station" that his brother built for him sometime in the '50s. Brother Dan (not his real name), who has since become a respectable ham, decided to do something nice for young David one day. I believe Dave told me it was shortly after Dan locked him in the basement and yelled ghost-sounds down the heating vents that this benevolence occurred.

Dan could see that Dave was fascinated by radio broadcasting, so he started with a wooden box with a sloping top. Dan's junk box yielded four tube sockets, in which he put four genuine tubes, whose filaments were powered with real AC current (and without so much as a three-prong plug — be still OSHA's heart!). The tubes gave the glow, the heat, and that famous smell of warm dust that's so dear to the baby-boomers among us today.

Dave's callsign was WTTA, with apologies to the real one, if there is one. Dave had no idea why Dan had chosen those letters, but he remembers them still. A microphone and a few switches, knobs, and dials rounded out Dave's first station — oh — and a telescoping antenna, too. It never mattered that this station had no output — no real working circuitry; it had magic. Sufficient magic that Dave did a long stint as a radio broadcaster before hanging up the cans and walking behind the equipment racks to become a broadcast engineer.

My own career was bumpier, but I ended up working next to Dave five days a week. On the way up, I worked with Morse code and early mechanical teletype machines, but started with a Cub Scout project crystal radio, which I swear to this day could receive any station in the world if I just tuned carefully enough.

The first day I ever ran 110V current through my entire body, I was sure I was about to die. Just as I figured it was all over, I imagined my parents being mad as hell and my brother wanting all my stuff. Then Tad Lindelow pulled the plug and I lived. Never did tell the folks. Tad was a great dump-partner *and* saved my life. What more could a seventh-grader ask? Dave's first "zap" was in his garage, and with no one there to save him. He lived, too. Once, rummaging through the Montgomeryville Merchandise Mart, I found a soldering gun for 99 cents. I couldn't believe my luck — I could finally solder. I bought the "gun" — a 50 watt iron with a pistol-handle, and set forth to solder that very night. I stayed up most of the night looking for the right method to solder a spade lug to an aluminum radio chassis. Used a whole 100-foot roll of solder. Had it stuck there a couple times —'til I touched it. Mine was a slow education. I told my dad about my plight; he could solder quite well — sheet metal, wires — most anything. I just didn't like his answer. "Make sure both pieces are clean and shiny — then heat the metal — not the solder." Imagine — even when he taught me to solder he was telling me to clean stuff up. I knew the answer was more heat — he just didn't want to tell me that 'cause he was afraid I'd burn myself.

My 250-watt Dual-Heat Weller let me melt solder *much* faster than the little one. I could go through a 25-foot spool of solder in an hour. Once, I had two wires actually stick together, but when I tried to improve the joint, they came apart.

Our neighbor was a plumber and electrician and did a lot of soldering. He told me to make a good, strong, mechanical joint and then use the solder to hold it tight and make a good electrical connection. *He* had a *torch!*

My torch was a propane torch I'd borrowed from my dad. I was gonna tell him, anyway. It was amazing how you could make metal glow red with that thing! I never did get around to soldering, because by the time I'd taken the temper out of every piece of steel in the basement and melted a milk bottle, my dad had run out of propane.

I've always been a poor solderer, but watching Dave put an XLR connector onto three wires in mid-air, with no workbench, has proven to me that I am still a klutz, too. I keep looking in his jacket for extra sleeves. Dave and I are still good junk-pickers. We often stumble upon things that other departments or broadcaster friends have tossed into a dumpster. The difference is that now, we repair or modify them for use on the job. We each still have a dump-picker's eye, but I always win in the crazy department. That's probably why Dave always drives the company car when it's trash day in our neighborhood. Says he's only keeping us from getting fired. He doesn't know I've already been there on my way to work. ■

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